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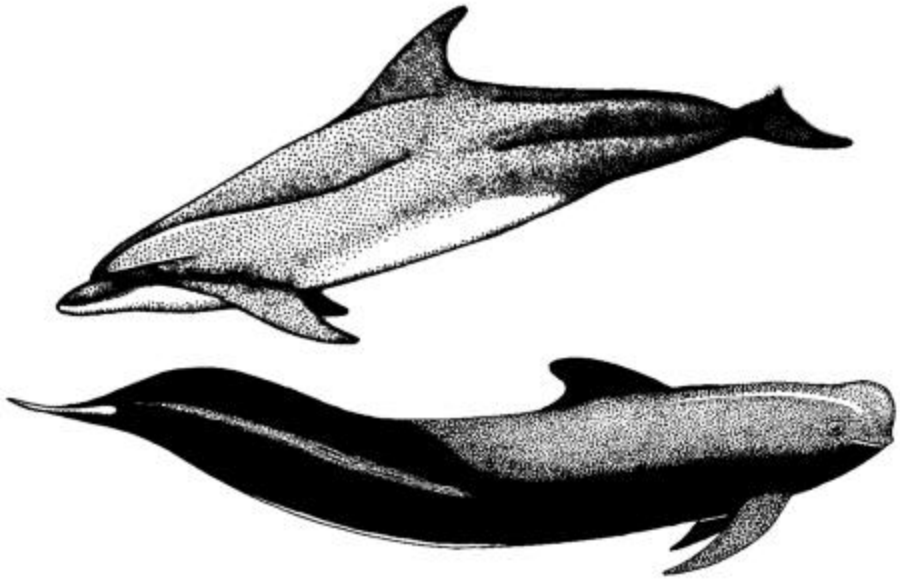

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National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
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Summary

This report presents the 1999-2000 estimates of the bycatch of marine mammals and turtles by the U.S. Atlantic pelagic longline fleet that lands tunas and Atlantic swordfish. The information is required by NOAA Fisheries to meet its responsibility for management of interactions between protected species and commercial fisheries based on the level of incidental serious injury and mortality. Estimates were based on bycatch rates from a representative sample of the fleet recorded by scientific observers, and fishing effort reported by the fleet. Estimates were constructed using the delta-lognormal method. The basic analytical stratum for which bycatch was estimated for each taxon was year-calendar quarter-grouped fishing area (NAREA). If a stratum had reported effort but no observed effort, quarters, years, and finally NAREA were pooled stepwise in that order until the number of observed sets (N_{min}) ≥5 before a pooled bycatch rate was estimated for the stratum. For marine mammals, 94 (95% CI=19, 481) pilot whales were estimated to be dead due to interaction with pelagic longline in 1999 and 24 (5, 123) in 2000, and the number estimated to be seriously injured was 8 (2, 41) in 1999 and 20 (4, 102) in 2000. No Risso's dolphin was estimated to have died in 1999 but 23 (5, 117) were estimated to be seriously injured; in 2000, 41 (8, 210) were estimated to have died and 23 (5, 117) seriously injured. No other species had estimated mortality, but 28 (5, 143) pygmy sperm whales as well as 19 (4, 97) unidentified whales were estimated to be seriously injured. For marine turtles, 1016 (412, 2764) leatherbacks and 994 (512, 2093) loggerheads were estimated to be caught in pelagic longline in 1999; 769 (251, 2512) leatherbacks and 1256 (529, 3391) loggerheads were estimated to be caught in 2000. The only estimated mortality was for 23 (5, 117) loggerheads in 1999.

Introduction

Longline is the principal gear used to fish for tunas (*Thunnus* spp.) and swordfish (*Xiphias gladius*) in the U.S. North Atlantic (including the Gulf of Mexico) (Hoey and Bertolino 1988). Non-targeted bycatch of this fishery includes protected species of marine mammals and turtles, which are hooked or entangled in the longline. The level of fishery-related mortality of these protected species has to be monitored and managed in accordance with the Marine Mammal Protection Act and the Endangered Species Act. The 1999-2000 estimates of marine mammals and turtles that were incidentally caught by the U.S. pelagic longline fishery are presented in this report. The 1999 estimates presented here supersede those reported earlier in Yeung *et al.* (2000) to the drafters of a Biological Opinion on the impact of the pelagic longline fishery on marine turtles.

Bycatch estimates of marine mammals and turtles for 1992-1997 (Johnson *et al*. 1999) and 1998 (Yeung 1999a; b) have been published. In these previous reports, the robustness of the bycatch estimates from several different pooling schemes for bycatch rates were examined, from minimal pooling (stratified estimates by year-quarter-grouped fishing area (NAREA)) to the highest level of pooling (within year-large fishing region (MAREA)). No bycatch estimates were made for strata without observer effort in these previous reports.

In Yeung *et al.* (2000), bycatch estimates for 1999 were analyzed using the pooling scheme employed in the analysis of longline fisheries for tunas, swordfish, sharks, and billfish (Brown, in press). Estimates for 1992-1998 were also re-analyzed using this scheme in the same report. The level of pooling in this scheme is determined by a criterion of a minimum number of observed fishing sets (N_{min}=5). Quarters, years, and finally NAREA are pooled stepwise in that order until the number of observed sets ≥5 before a pooled bycatch rate is estimated for the analytical stratum of year-quarter-NAREA. This pooling scheme was used in the analysis of 1999-2000 data for the present report. For that stratum with reported effort but no observed effort, this pooling scheme allows for a bycatch estimate based on observations from similar strata.

Methods

Data usage in this report followed Yeung *et al.* (2000) and differed from other previous reports (Johnson *et al*. 1999; Yeung 1999a; b) in the following respects: (1) Previously, only effort strictly targeting tunas or swordfish to the exclusion of other species was included; here, logbook effort that targeted some other species in addition to tunas or swordfish was also included. (2) The fishing area previously was defined by the locations where the longline was set out to begin fishing; here, it was defined by the location where the haul-back of the longline began after fishing. (3) The parts of sets that were interrupted (*e.g.*, when the main line was severed) previously were defined as separate sets; here, they were combined. Data sources and methods of bycatch estimation remained unchanged and are only briefly recapitulated here:

Reported and Observed Data

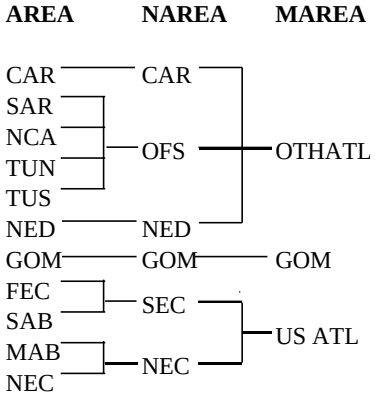
Effort reported by the fishery was obtained from the Atlantic Large Pelagic Logbook database maintained by the SEFSC (Southeast Fisheries Science Center), which contains daily fishing effort reported by all U.S. Atlantic longline vessels landing swordfish and tunas (Cramer and Adams 2000). Reported effort units are individual set (gear deployment) records reporting at least 100 hooks fished, and which are not reported to be bottom longline sets or which indicates a target of tunas or swordfish, irrespective of whether other species were targeted as well. Reported effort (hooks and sets fished) is classified by year, calendar quarter, and fishing area (Figure 1). Effort missing location data are proportionally distributed among fishing areas based on the distribution of known set locations for the pertinent year and calendar quarter. Effort missing calendar quarter data within a fishing area are proportionally distributed among quarters based on the distribution of effort across quarters within the area.

Observed effort and bycatch of protected species were obtained from the SEFSC Observer Program database (Lee and Brown 1998). These data were collected by scientific observers through systematic sampling on board U.S. pelagic longline vessels in the Atlantic permitted to land and sell swordfish.

Not withstanding errors due to mis-reporting, fishery-reported effort from the logbook (reported effort) is taken as representative of the actual permitted effort expended by the U.S. pelagic longline fleet in the Atlantic. Observed bycatch rates are raised to the amount of reported effort in the logbook for estimating total bycatch.

Geographical stratification

The territory where the U.S. Atlantic pelagic longline fleet operates is divided into eleven areas (AREA), or six grouped fishing areas (NAREA), or 3 major fishing regions (MAREA) as follows (also see Figure 1):



CAR=Caribbean
GOM=Gulf of Mexico
NED=Northeast Distant
SEC=Southeast Coastal
MAB=Mid-Atlantic Bight
FEC=Florida East Coast
SAB=South Atlantic Bight
NEC=Northeast Coastal
OFS=Offshore South
SAR=Sargasso
NCA=North Central Atlantic
TUS=Tuna South
TUN=Tuna North
US ATL=U.S. Atlantic EEZ
OTHATL=other Atlantic waters

In general, fishing effort is classified based on reported or observed latitude and longitudes. When in some cases location information is not available, fishing areas (for catch and effort) are assigned based on examination of neighboring sets (neighboring days of fishing on the same trip) or observer logs. Where specific locations could not be determined or extrapolated from neighboring days, the reported sets are proportionally assigned to fishing areas based on the overall distribution of the reported effort with known locations.

Catch Estimation

Estimates of bycatch of marine mammals and marine turtles were constructed using the delta-lognormal method (Pennington, 1983). Formulae and further discussion on the delta-lognormal estimation method can be found in Yeung *et al.* (2000). The method assumes a lognormal distribution of the positive bycatch rate observations. Effectively, the estimates are constructed as a product of the proportion of successful occurrences of an event and the average rate at which the event occurs for those successful events. The variance is a function of the variability of the positive bycatch rates as well the number of successful and unsuccessful sets.

Bycatch estimates by the basic analytical stratum of year-quarter-NAREA are assumed independent and as such estimated bycatch and the associated variances are summed across strata to produce region-wide annual estimates. This assumption may cause the actual variance of bycatch estimate to be underestimated.

Treatment of strata with no observer effort

In the previous reports (Johnson *et al*. 1999; Yeung 1999a; b), when there was no observer effort for a particular analytical stratum, the mean bycatch rate and the proportion of positive sets were not estimated. No estimate of take was made for the stratum even though the logbook showed that there was fishing effort. Strata with no observed effort occurred mainly in CAR, NED, and OFS of the "other Atlantic waters" (MAREA=OthAtl).

Pooling of observed effort is necessary to obtain estimates for these empty cells with no observed effort. The pooling method used in this analysis was described in Yeung *et al.* (2000). It is based on the assessment method for the catch of large pelagics in the U.S. pelagic longline fisheries (Brown, in press). A degree of pooling of observed effort (sets) is assessed stepwise using a criterion of minimum number of observed sets (N_{min}). A low N_{min} of 5 observed sets and high of 30 sets were chosen arbitrarily and evaluated using 1992-1999 data in Yeung *et al.* (2000). Both choices of the parameter resulted in similar estimates, but N_{min}=5 is preferred because it would reduce the need to pool data and thus the smoothing of the effects due to the time-area differences. The pooling priority order of quarter, year, and NAREA was established according to the increasing order of variance explained attributed to the effect in a GLM: L'_j = year + quarter + NAREA, where the catch rate (from 1992-1999, including zero catch rates) in the j^{th} observed set $L'_j = \log_e(\text{catch/hooks} + 0.00001)$, $j = 1, 2, ..., N$ (Yeung *et al.* 2000). NAREA was the most significant effect in the model and therefore the last to enter the pooling scheme.

Thus, in the absence of observer data for a basic analytical stratum, observations are first pooled across quarters within year-NAREA to obtain a minimum of N_{min} observed sets. Should

that not suffice to meet the N_{min} criterion, observations are then pooled across all quarters in all years (1999 and 2000 in this analysis) within NAREA. Lastly, if N_{min} is still not met, observations are pooled across quarters in all years and all NAREAs to obtain an estimate of the bycatch rate and the proportion of positive sets for the stratum. The variance for the bycatch $V(C)$ is then estimated over the pooled stratum. It would be highly unusual for the pooling of NAREAs to be necessary to achieve the low N_{min} of 5. The extent of pooling in this analysis can be determined by examination of Table 3B; any cell with a number of observations less than N_{min} would require pooling according to the pooling scheme.

Serious Injury and Mortality

Marine mammals were classified by their condition upon return to the sea and bycatch estimates were produced separately for each category. The four release conditions are: (1) alive, (2) dead, (3) unknown, and (4) seriously injured. Seriously-injured mammals are defined as having sustained injury of sufficient severity to significantly increase the near-term probability of death of the animal (Angliss and DeMaster 1998). The "serious injury" designation is based on checking observer comments on the animal against fifteen criteria (Appendix I; Yeung 1999a). Failure to take into account serious injury to an animal that might result in death after its release would underestimate the impact of the fishery on a species. For marine turtles only conditions (1)-(3) were applied. Since 1999, detailed information on the release condition of each marine turtle caught in the pelagic longline gear has been recorded separately in the Sea Turtle Life History Form (Appendix II) by observers and reviewed by the Sea Turtle Team in SEFSC. The category "alive" when applied to marine turtles includes "alive, injured" and "alive, uninjured".

Results and Discussion

Reported and observed effort (hooks and sets) by year-quarter-AREA are respectively summarized in Tables 1-2. Total reported effort was 7242.8 thousand hooks in 11235 sets for 1999 and 7527.5 thousand hooks in 11307 sets in 2000 (Table 1). Total observed effort was 291.2 thousand hooks in 420 sets for 1999 and 329.7 thousand hooks in 464 sets for 2000 (Table 2). Table 3 provides summaries of reported and observed effort (sets) by the basic analytical stratum of year-quarter-NAREA.

The few cells with no reported effort were in the OFS, NED and CAR (Table 3A). There were more cells with no observed effort but they also occurred in those same areas just mentioned (Table 3B). Incidental takes of marine mammals were very low in these areas, but marine turtle takes could be very high in NED (Table 4). Pooling across quarters within year-NAREA was sufficient to achieve the N_{min} of 5 sets for estimating bycatch in all empty cells with no observed effort and in NEC 1999 quarter 2 where effort < N_{min} (4). The one exception where further pooling of observed effort across years within NAREA was necessary to achieve N_{min} was CAR 2000, in which there was no observed effort in any quarter.

The percentage observer coverage (observed effort ÷ reported effort x 100%) by hooks ranged from 0-38% (Table 5). The percentage coverage by sets was very similar. Whether by sets or by hooks, the total annual percent coverage was about 4% for 1999 and 2000.

A total of seven marine mammals were observed to be caught in five sets in 1999 (Tables 4, 6). Five of the seven were caught in NEC, one in SEC, and one in NED. There were five pilot whales (*Globicephalus* sp.), one Risso's dolphin (*Grampus griseus*), and one unidentified marine mammal. One pilot whale was observed to be dead and four were classified as seriously injured (Appendix I). The Risso's dolphin was also classified as seriously injured.

Fourteen marine mammals were observed caught in 2000 in 13 sets. Again, they were all caught in NEC, SEC, or NED. There were eight were pilot whales, three Risso's dolphins, one pygmy sperm whale (*Kogia breviceps*), one common dolphin (*Delphinus delphis*), and one unidentified whale. One pilot whale and one Risso's dolphin were observed to be dead. Four pilot whales, one Risso's dolphin, the pygmy sperm whale, and the unidentified whale were classified as seriously injured. No marine mammal was released with condition "unknown" in 1999-2000.

A total of 112 marine turtles were observed to be caught in 1999 (Tables 4, 6). Of that, 45 were leatherbacks (*Dermochelys coriacea*), 64 were loggerheads (*Caretta caretta*), and 3 were unidentified hard-shell turtles. The majority (76) was caught in NED. Only one loggerhead was observed to be dead. A total of 87 marine turtles were observed to be caught in 2000. Of that, 32 were leatherbacks, 50 were loggerheads, and 5 were unidentified hard-shells turtles. None was observed to be dead. In 2000, the incidental takes were more evenly distributed among NED, SEC, GOM, and NEC (Table 6). Summary of the observed condition of each turtle as recorded in the Sea Turtle Life History Form is given in Appendix III.

Bycatch estimates for each taxon of marine mammals and turtles by the basic year-quarter-NAREA-taxon stratum are given in Table 7. In cases where a stratum had no observed bycatch due to no observed effort, there could still be a non-zero bycatch estimate from pooling effort and bycatch data across strata as described in the Methods section. The basic stratified estimates were further summed to give annual estimates by NAREA (Table 8) and MAREA (Table 9), and finally for all areas combined (Table 10).

The results as represented by the summed annual estimates for all areas combined indicate that pilot whale was the most common species of marine mammal caught in pelagic longline (Table 10). The number of pilot whales estimated to be dead in 1999 due to interaction with pelagic longline was 94 (95% CI=19, 481) in 1999 and 24 (5, 123) in 2000, and the number estimated to be seriously injured was 8 (2, 41) in 1999 and 20 (4, 102) in 2000. Risso's dolphins were the second most common species caught. No Risso's dolphin was estimated to have died in 1999 but 23 (5, 117) were estimated to be seriously injured; in 2000, 41 (8, 210) were estimated to have died and 23 (5, 117) seriously injured. No other species had estimated mortality, but 28 (5, 143) pygmy sperm whales as well as 19 (4, 97) unidentified whales were estimated to be seriously injured. All marine mammals bycatch came from US Atlantic (US Atl) or other Atlantic waters (OthAtl). The estimated bycatch of marine mammals in GOM is nil (Table 9).

Almost the same number of leatherbacks (1016; 95% CI=412, 2794) and loggerheads (994; 512, 2093) were estimated to be caught in pelagic longline in 1999, but twice as many loggerheads (1256; 529, 3391) as leatherbacks (769; 251, 2512) were estimated to be caught in 2000 (Table 10). The discrepancies in bycatch of species between years could be a combined

result of oceanographic conditions and animal behavior (NMFS-SEFSC 2001). The only estimated mortality was for 23 (5, 117) loggerheads in 1999. There were also a small fraction of turtles of either species that were classified to be of unknown condition when released. The self-reported incidental take of marine turtles in the logbook amounted to only 578 in 1999 and 271 in 2000, vastly lower than the estimated total takes. Turtles released "alive, uninjured" were usually not hooked but lightly entangled in the gear and account for less than 10 % of the "alive" category (Table 11).

Preliminary examination of the sensitivity of this method to N_{min} and the pooling priority of the three effects (year, quarter, NAREA) indicate that the estimated total bycatch was not greatly disparate in magnitude between the choice of N_{min}= 5 or 30 when pooling priority was held constant, although the higher N_{min} tends to give a higher estimate. The choice of pooling priority between the order of quarter-year and of year-quarter, with N_{min} held constant, appeared to also have a small effect on the magnitude of the estimated total bycatch in most cases (Yeung *et al.* 2000).

While the method of pooling strata, the least significant first, appears promising for estimating bycatch when a minimum observer sample size has not been obtained, pooling across strata to obtain the necessary number of observations is not an adequate substitute for raising actual observation effort within a stratum. Ignoring the variability among strata could lead to highly unreliable and/or variable estimates. Pooling may obscure significant differences and trends within and across factors. Where there is a paucity of actual observations, this method may be an acceptable alternative when applied with a consideration of its limitations.

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Appendices

Table 1. Effort in A) number of hooks (× 1000) and B) number of sets reported in logbook for the pelagic longline fishery in the U.S. Atlantic in 1999-2000, stratified by calendar quarter and fishing area (AREA). Effort data lacking area and quarter information are designated as unknown (UNK). Blank cell indicates no reported effort for that stratum.

A. Number of hooks (× 1000)

YEAR	QTR	CAR	FEC	GOM	MAB	NCA	NEC	NED	SAB	SAR	TUN	TUS	unk	Total
1999	**1**	124.7	218.8	833.7	49.4	68.3		2.7	214.4	16.8	10.5	42.2	27.0	1608.5
1999	**2**	24.5	247.0	902.8	128.3	2.8	83.4	48.1	280.5		22.9	93.5	30.7	1864.7
1999	**3**	0.2	113.4	768.0	508.1	15.0	391.3	192.7	131.6		4.6	6.8	31.4	2163.2
1999	**4**	2.5	117.4	681.3	455.3	29.1	96.3	95.2	82.7		1.0	28.9	16.8	1606.4
	Total	151.9	696.7	3185.9	1141.1	115.3	571.1	338.7	709.2	16.8	39.0	171.4	105.9	7242.8
2000	**1**	145.5	188.1	781.7	37.9	54.6			141.8		2.4	49.8	22.4	1424.0
2000	**2**	51.4	220.8	888.8	146.9	6.1	50.5	80.2	350.2	3.8	12.9	25.7	55.5	1892.9
2000	**3**		154.8	901.0	350.1		468.0	361.6	87.4			0.8	80.6	2404.3
2000	**4**	47.9	109.2	862.4	418.8	9.1	80.8	101.1	101.4			8.4	67.2	1806.3
	Total	244.8	672.9	3433.9	953.7	69.7	599.4	542.9	680.8	3.8	15.3	84.6	225.8	7527.5

B. Number of sets

YEAR	QTR	CAR	FEC	GOM	MAB	NCA	NEC	NED	SAB	SAR	TUN	TUS	unk	Total
1999	**1**	210	573	1123	84	100		4	329	22	16	57	45	2563
1999	**2**	50	651	1219	238	4	103	69	482		27	122	60	3025
1999	**3**	1	382	1008	696	16	492	228	308		5	8	60	3204
1999	**4**	6	401	920	595	36	120	108	197		1	29	30	2443
	Total	267	2007	4270	1613	156	715	409	1316	22	49	216	195	11235
2000	**1**	248	497	1019	76	86			212		3	62	32	2235
2000	**2**	76	593	1186	230	16	58	88	531	5	16	27	72	2898
2000	**3**		483	1179	573		583	397	209			1	75	3500
2000	**4**	87	362	1099	634	11	92	117	202			7	63	2674
	Total	411	1935	4483	1513	113	733	602	1154	5	19	97	242	11307

Table 2. Observed effort in A) number of hooks (× 1000) and B) number of sets sampled from the pelagic longline fishery in the U.S. Atlantic in 1999-2000, stratified by calendar quarter and fishing area (AREA). Blank cell indicates no observed effort for that stratum.

A. Number of hooks (× 1000)

YEAR	QTR	CAR	FEC	GOM	MAB	NCA	NEC	NED	SAB	SAR	TUN	TUS	Total
1999	**1**	12.24	4.52	33.72	2.33	1.50			3.18	2.06	1.73	7.78	69.05
1999	**2**		11.76	30.89	3.05			18.43	22.90				87.02
1999	**3**		3.94	29.58	6.64		12.14	13.81	1.70				67.80
1999	**4**		1.31	40.15	11.17		10.02		4.68				67.33
	Total	12.24	21.52	134.33	23.19	1.50	22.16	32.24	32.46	2.06	1.73	7.78	291.19
2000	**1**		4.67	20.87	2.11	10.54			7.58				45.77
2000	**2**		9.79	41.86	5.63		6.91		25.68				89.86
2000	**3**		5.37	45.79	14.39		21.45	32.07	1.34				120.40
2000	**4**		4.31	32.07	13.77		7.07	6.69	9.79				73.70
	Total		24.14	140.58	35.89	10.54	35.43	38.76	44.39				329.73

B. Number of sets

YEAR	QTR	CAR	FEC	GOM	MAB	NCA	NEC	NED	SAB	SAR	TUN	TUS	Total
1999	**1**	17	8	47	6	2			5	3	2	10	100
1999	**2**		32	42	4			23	28				129
1999	**3**		12	35	13		12	17	5				94
1999	**4**		5	53	16		11		12				97
	Total	17	57	177	39	2	23	40	50	3	2	10	420
2000	**1**		13	31	5	15			11				75
2000	**2**		24	51	10		7		30				122
2000	**3**		14	45	23		30	38	4				154
2000	**4**		12	44	22		10	9	16				113
	Total		63	171	60	15	47	47	61				464

Table 3. A) Reported and B) observed effort (sets) for the pelagic longline fishery in the U.S. Atlantic in 1999-2000, summarized by year-quarter-NAREA. If there is reported effort in a stratum but the observed effort is less than the N_{min} of 5 sets, the value in the stratum is put in bold type to indicate that pooling is necessary to estimate bycatch for that stratum.

A) Reported effort

yr	qtr	CAR	GOM	NEC	NED	OFS	SEC
1999	1	210	1123	84	4	195	902
	2	50	1219	341	69	153	1133
	3	1	1008	1188	228	29	690
	4	6	920	715	108	66	598
Total		267	4270	2328	409	443	3323
2000	1	248	1019	76	0	151	709
	2	76	1186	288	88	64	1124
	3	0	1179	1156	398	0	692
	4	87	1099	726	117	18	564
Total		411	4483	2246	603	233	3089

B) Observed effort

yr	qtr	CAR	GOM	NEC	NED	OFS	SEC
1999	1	17	47	6	**0**	17	13
	2	**0**	42	**4**	23	**0**	60
	3	**0**	35	25	17	**0**	17
	4	**0**	53	27	**0**	**0**	17
Total		17	177	62	40	17	107
2000	1	**0**	31	5	0	15	24
	2	**0**	51	17	**0**	**0**	54
	3	0	45	53	38	0	18
	4	**0**	44	32	9	**0**	28
Total		0	171	107	47	15	124

Table 4. Observed total number of A) marine mammals and B) marine turtles caught in the pelagic longline fishery in the U.S. Atlantic in 1999-2000 by year-quarter -NAREA. Blank cells indicate no observed effort.

A. Marine mammals

yr	qtr	CAR	SEC	GOM	NEC	OFS	NED	Total
1999	1	0	0	0	0	0		0
1999	2		1	0	0		0	1
1999	3		0	0	4		1	5
1999	4		0	0	1			1
	Total		1		5		1	7
2000	1		1	0	1	0		2
2000	2		1	0	0			1
2000	3		1	0	5		0	6
2000	4		1	0	3		1	5
	Total		4		9		1	14

B. Marine turtle

yr	qtr	CAR	SEC	GOM	NEC	OFS	NED	Total
1999	1	7	2	1	0	0		10
1999	2		6	0	0		23	29
1999	3		1	0	0		53	54
1999	4		2	5	12			19
	Total	7	11	6	12		76	112
2000	1		3	3	0	5		11
2000	2		7	6	2			15
2000	3		2	5	16		17	40
2000	4		4	0	6		11	21
	Total		16	14	24	5	28	87

Table 5. Percentage coverage (observed effort ÷ reported effort x 100%) in each year-quarter-NAREA stratum by A) number of hooks and B) number of sets. Blank cells indicate no reported effort.

A) Coverage by hooks

yr	qtr	CAR	GOM	NEC	NED	OFS	SEC
1999	1	10	4	5	0	9	2
	2	0	3	1	38	0	7
	3	0	4	2	7	0	2
	4	0	6	4	0	0	3
2000	1	0	3	6		10	4
	2	0	5	6	0	0	6
	3		5	4	9		3
	4	0	4	4	7	0	7

B) Coverage by sets

yr	qtr	CAR	GOM	NEC	NED	OFS	SEC
1999	1	8	4	7	0	9	1
	2	0	3	1	33	0	5
	3	0	3	2	7	0	2
	4	0	6	4	0	0	3
2000	1	0	3	7		10	3
	2	0	4	6	0	0	5
	3		4	5	10		3
	4	0	4	4	8	0	5

Table 6. A) Marine mammal and B) marine turtle bycatch observed in U.S. Atlantic pelagic longline fishery in 1999-2000 listed by year, calendar quarter (QTR), vessel trip identifier (TRIP), set on which bycatch was observed (HAUL#), the number of hooks set (HOOKS), fishing region (AREA, NAREA, MAREA), the TOTAL number observed, the number out of the total which were observed to be ALIVE, DEAD, seriously injured (INJUR) upon return to the sea (this category only applies to marine mammals), and of unknown condition (UNK) (no marine mammal fell into this category in 1999-2000).

A) Marine mammal

YEAR	QTR	TRIP	HAUL#	SPECIES	TOTAL	ALIVE	DEAD	INJUR	HOOKS	AREA	NAREA	MAREA
1999	2	T45	7	pilot whale	1	0	0	1	1150	SAB	SEC	US ATL
1999	3	W05	1	pilot whale	3	0	1	2	425	MAB	NEC	US ATL
1999	3	W05	5	pilot whale	1	0	0	1	425	MAB	NEC	US ATL
1999	3	F69	10	marine mammal	1	1	0	0	972	NED	NED	OTHATL
1999	4	A31114	1	Risso's dolphin	1	0	0	1	1056	MAB	NEC	US ATL
2000	3	T01054	9	common dolphin	1	1	0	0	500	NEC	NEC	US ATL
2000	1	W01010	1	pilot whale	1	0	0	1	380	MAB	NEC	US ATL
2000	2	K02001	7	pilot whale	1	1	0	0	360	FEC	SEC	US ATL
2000	3	W01012	3	pilot whale	2	0	0	2	450	MAB	NEC	US ATL
2000	3	T01054	4	pilot whale	1	0	0	1	864	NEC	NEC	US ATL
2000	4	S01032	5	pilot whale	1	0	1	0	328	FEC	SEC	US ATL
2000	4	T01055	4	pilot whale	1	1	0	0	600	MAB	NEC	US ATL
2000	4	Y01001	1	pilot whale	1	1	0	0	396	MAB	NEC	US ATL
2000	1	S01022	6	pygmy sperm whale	1	0	0	1	496	FEC	SEC	US ATL
2000	3	S01028	1	Risso's dolphin	1	0	1	0	336	SAB	SEC	US ATL
2000	4	T01055	2	Risso's dolphin	1	1	0	0	550	MAB	NEC	US ATL
2000	4	J02005	8	Risso's dolphin	1	0	0	1	591	NED	NED	OTHATL
2000	3	W01013	4	whale	1	0	0	1	835	NEC	NEC	US ATL

B) Marine turtle

YEAR	QTR	TRIP	HAUL#	SPECIES	TOTAL	ALIVE	DEAD	UNK	HOOKS	AREA	NAREA	MAREA
1999	1	S10	3	leatherback	1	1	0	0	400	FEC	SEC	US ATL
1999	1	N34	4	leatherback	1	1	0	0	756	CAR	CAR	OTHATL
1999	1	S10	5	leatherback	1	1	0	0	444	FEC	SEC	US ATL
1999	1	N34	7	leatherback	1	1	0	0	704	CAR	CAR	OTHATL
1999	2	S14	4	leatherback	1	1	0	0	825	NED	NED	OTHATL
1999	2	F67	5	leatherback	1	1	0	0	459	SAB	SEC	US ATL
1999	2	T45	6	leatherback	1	1	0	0	1100	SAB	SEC	US ATL
1999	2	W03	8	leatherback	1	1	0	0	360	FEC	SEC	US ATL
1999	2	S14	12	leatherback	1	1	0	0	990	NED	NED	OTHATL
1999	2	S14	16	leatherback	2	2	0	0	825	NED	NED	OTHATL
1999	2	S14	22	leatherback	1	1	0	0	1100	NED	NED	OTHATL
1999	3	F69	4	leatherback	1	1	0	0	918	NED	NED	OTHATL
1999	3	F69	5	leatherback	1	1	0	0	972	NED	NED	OTHATL
1999	3	Q09	5	leatherback	1	1	0	0	350	SAB	SEC	US ATL
1999	3	F69	6	leatherback	3	3	0	0	864	NED	NED	OTHATL
1999	3	F69	7	leatherback	2	0	0	2	918	NED	NED	OTHATL
1999	3	F69	8	leatherback	3	2	0	1	756	NED	NED	OTHATL
1999	3	F69	11	leatherback	3	1	0	2	648	NED	NED	OTHATL

YEAR	QTR	TRIP	HAUL#	SPECIES	TOTAL	ALIVE	DEAD	UNK	HOOKS	AREA	NAREA	MAREA
1999	3	F69	12	leatherback	7	6	0	1	972	NED	NED	OTHATL
1999	3	F69	13	leatherback	3	3	0	0	702	NED	NED	OTHATL
1999	3	F69	14	leatherback	3	2	0	1	756	NED	NED	OTHATL
1999	3	F69	17	leatherback	1	1	0	0	918	NED	NED	OTHATL
1999	4	S20	1	leatherback	1	1	0	0	460	GOM	GOM	GOM
1999	4	W07	1	leatherback	2	2	0	0	1020	MAB	NEC	US ATL
1999	4	W07	2	leatherback	1	1	0	0	1060	NEC	NEC	US ATL
1999	4	W07	6	leatherback	1	1	0	0	165	NEC	NEC	US ATL
1999	1	N34	2	loggerhead	1	1	0	0	768	CAR	CAR	OTHATL
1999	1	N34	3	loggerhead	2	2	0	0	748	CAR	CAR	OTHATL
1999	1	N34	7	loggerhead	1	1	0	0	704	CAR	CAR	OTHATL
1999	1	N34	12	loggerhead	1	1	0	0	768	CAR	CAR	OTHATL
1999	2	S14	1	loggerhead	3	3	0	0	990	NED	NED	OTHATL
1999	2	T44	4	loggerhead	2	2	0	0	1029	SAB	SEC	US ATL
1999	2	F67	5	loggerhead	1	1	0	0	459	SAB	SEC	US ATL
1999	2	S14	10	loggerhead	1	1	0	0	670	NED	NED	OTHATL
1999	2	S14	16	loggerhead	1	1	0	0	825	NED	NED	OTHATL
1999	2	S14	17	loggerhead	1	1	0	0	825	NED	NED	OTHATL
1999	2	S14	18	loggerhead	5	5	0	0	990	NED	NED	OTHATL
1999	2	S14	19	loggerhead	1	1	0	0	825	NED	NED	OTHATL
1999	2	S14	20	loggerhead	1	1	0	0	825	NED	NED	OTHATL
1999	2	S14	22	loggerhead	1	1	0	0	1100	NED	NED	OTHATL
1999	2	S14	23	loggerhead	4	4	0	0	825	NED	NED	OTHATL
1999	3	F69	1	loggerhead	3	3	0	0	687	NED	NED	OTHATL
1999	3	F69	2	loggerhead	4	4	0	0	864	NED	NED	OTHATL
1999	3	F69	4	loggerhead	3	3	0	0	918	NED	NED	OTHATL
1999	3	F69	5	loggerhead	3	3	0	0	972	NED	NED	OTHATL
1999	3	F69	6	loggerhead	1	1	0	0	864	NED	NED	OTHATL
1999	3	F69	7	loggerhead	1	0	0	1	918	NED	NED	OTHATL
1999	3	F69	9	loggerhead	1	1	0	0	972	NED	NED	OTHATL
1999	3	F69	10	loggerhead	2	2	0	0	972	NED	NED	OTHATL
1999	3	F69	11	loggerhead	2	2	0	0	648	NED	NED	OTHATL
1999	3	F69	12	loggerhead	4	3	0	1	972	NED	NED	OTHATL
1999	3	F69	13	loggerhead	1	1	0	0	702	NED	NED	OTHATL
1999	3	F69	17	loggerhead	1	1	0	0	918	NED	NED	OTHATL
1999	4	W07	1	loggerhead	3	3	0	0	1020	GOM	GOM	GOM
1999	4	W08	1	loggerhead	1	1	0	0	492	NEC	NEC	US ATL
1999	4	W07	2	loggerhead	1	1	0	0	1060	MAB	NEC	US ATL
1999	4	W08	2	loggerhead	1	1	0	0	366	NEC	NEC	US ATL
1999	4	S17	2	loggerhead	1	1	0	0	294	NEC	NEC	US ATL
1999	4	S18	2	loggerhead	1	1	0	0	504	SAB	SEC	US ATL
1999	4	W07	4	loggerhead	1	1	0	0	1090	MAB	NEC	US ATL
1999	4	S20	6	loggerhead	1	1	0	0	480	FEC	SEC	US ATL
1999	4	W07	9	loggerhead	1	0	1	0	1020	MAB	NEC	US ATL
1999	4	W07	10	loggerhead	1	1	0	0	850	NEC	NEC	US ATL
1999	1	P43	4	turtle	1	0	0	1	750	GOM	GOM	GOM
1999	4	R02	1	turtle	1	1	0	0	840	MAB	NEC	US ATL
1999	4	P50	5	turtle	1	1	0	0	904	GOM	GOM	GOM
2000	1	Q02005	7	leatherback	1	1	0	0	793	GOM	GOM	GOM

YEAR	QTR	TRIP	HAUL#	SPECIES	TOTAL	ALIVE	DEAD	UNK	HOOKS	AREA	NAREA	MAREA
2000	1	M01018	13	leatherback	1	1	0	0	792	NCA	OFS	OTHATL
2000	1	S01023	2	leatherback	1	1	0	0	277	SAB	SEC	US ATL
2000	1	S01023	3	leatherback	1	1	0	0	395	SAB	SEC	US ATL
2000	2	P01055	3	leatherback	1	1	0	0	950	GOM	GOM	GOM
2000	2	P01056	2	leatherback	1	1	0	0	850	GOM	GOM	GOM
2000	2	P01056	8	leatherback	1	1	0	0	870	GOM	GOM	GOM
2000	2	P01056	10	leatherback	1	1	0	0	850	GOM	GOM	GOM
2000	2	B56038	3	leatherback	1	1	0	0	1000	NEC	NEC	US ATL
2000	3	P01057	4	leatherback	1	1	0	0	850	GOM	GOM	GOM
2000	3	P01057	6	leatherback	2	2	0	0	850	GOM	GOM	GOM
2000	3	Q02009	5	leatherback	1	1	0	0	804	GOM	GOM	GOM
2000	3	Q02010	2	leatherback	1	1	0	0	918	GOM	GOM	GOM
2000	3	T01054	3	leatherback	1	1	0	0	864	NEC	NEC	US ATL
2000	3	J02003	2	leatherback	2	2	0	0	768	NED	NED	OTHATL
2000	3	J02003	15	leatherback	1	1	0	0	768	NED	NED	OTHATL
2000	3	J02003	18	leatherback	1	1	0	0	804	NED	NED	OTHATL
2000	3	M01020	11	leatherback	2	2	0	0	960	NED	NED	OTHATL
2000	3	M01020	18	leatherback	1	1	0	0	960	NED	NED	OTHATL
2000	3	S01028	4	leatherback	1	1	0	0	336	SAB	SEC	US ATL
2000	4	S01032	6	leatherback	1	1	0	0	328	FEC	SEC	US ATL
2000	4	T01055	5	leatherback	1	1	0	0	500	MAB	NEC	US ATL
2000	4	J02005	10	leatherback	1	1	0	0	729	NEC	NEC	US ATL
2000	4	J02005	13	leatherback	1	1	0	0	540	NEC	NEC	US ATL
2000	4	J02005	1	leatherback	1	1	0	0	552	NED	NED	OTHATL
2000	4	J02005	7	leatherback	3	3	0	0	648	NED	NED	OTHATL
2000	4	S01031	4	leatherback	1	1	0	0	256	SAB	SEC	US ATL
2000	1	S01022	6	loggerhead	1	1	0	0	496	FEC	SEC	US ATL
2000	1	Q02005	8	loggerhead	1	1	0	0	797	GOM	GOM	GOM
2000	1	T01049	10	loggerhead	1	1	0	0	448	GOM	GOM	GOM
2000	1	M01018	6	loggerhead	1	1	0	0	768	NCA	OFS	OTHATL
2000	1	M01018	8	loggerhead	1	1	0	0	768	NCA	OFS	OTHATL
2000	1	M01018	12	loggerhead	2	2	0	0	864	NCA	OFS	OTHATL
2000	2	R01005	5	loggerhead	1	1	0	0	318	FEC	SEC	US ATL
2000	2	S01025	4	loggerhead	1	1	0	0	636	FEC	SEC	US ATL
2000	2	S01025	7	loggerhead	1	1	0	0	596	FEC	SEC	US ATL
2000	2	A25006	2	loggerhead	1	1	0	0	660	MAB	NEC	US ATL
2000	2	J02001	6	loggerhead	1	1	0	0	580	SAB	SEC	US ATL
2000	3	J02004	4	loggerhead	2	2	0	0	580	MAB	NEC	US ATL
2000	3	J02004	5	loggerhead	1	1	0	0	550	MAB	NEC	US ATL
2000	3	J02004	6	loggerhead	1	1	0	0	220	MAB	NEC	US ATL
2000	3	W01013	10	loggerhead	1	1	0	0	800	MAB	NEC	US ATL
2000	3	W01013	12	loggerhead	1	1	0	0	780	MAB	NEC	US ATL
2000	3	J02004	3	loggerhead	1	1	0	0	605	NEC	NEC	US ATL
2000	3	O02008	1	loggerhead	1	1	0	0	820	NEC	NEC	US ATL
2000	3	T01054	1	loggerhead	1	1	0	0	750	NEC	NEC	US ATL
2000	3	T01054	2	loggerhead	1	1	0	0	786	NEC	NEC	US ATL
2000	3	T01054	4	loggerhead	1	0	0	1	864	NEC	NEC	US ATL
2000	3	T01054	7	loggerhead	1	1	0	0	648	NEC	NEC	US ATL
2000	3	W01013	2	loggerhead	1	1	0	0	835	NEC	NEC	US ATL
2000	3	W01013	4	loggerhead	1	1	0	0	835	NEC	NEC	US ATL
2000	3	W01014	4	loggerhead	1	1	0	0	1044	NEC	NEC	US ATL

YEAR	QTR	TRIP	HAUL#	SPECIES	TOTAL	ALIVE	DEAD	UNK	HOOKS	AREA	NAREA	MAREA
2000	3	J02003	1	loggerhead	3	3	0	0	576	NED	NED	OTHATL
2000	3	J02003	18	loggerhead	1	1	0	0	804	NED	NED	OTHATL
2000	3	M01020	1	loggerhead	1	1	0	0	1032	NED	NED	OTHATL
2000	3	M01020	3	loggerhead	1	1	0	0	1056	NED	NED	OTHATL
2000	3	M01020	4	loggerhead	1	1	0	0	1056	NED	NED	OTHATL
2000	3	M01020	6	loggerhead	1	1	0	0	625	NED	NED	OTHATL
2000	3	M01020	9	loggerhead	1	1	0	0	1050	NED	NED	OTHATL
2000	3	M01020	10	loggerhead	1	1	0	0	816	NED	NED	OTHATL
2000	3	S01028	2	loggerhead	1	0	0	1	336	SAB	SEC	US ATL
2000	4	S01031	1	loggerhead	1	1	0	0	384	FEC	SEC	US ATL
2000	4	T01055	5	loggerhead	2	2	0	0	500	MAB	NEC	US ATL
2000	4	K02003	4	loggerhead	1	1	0	0	768	NEC	NEC	US ATL
2000	4	J02005	1	loggerhead	4	4	0	0	552	NED	NED	OTHATL
2000	4	J02005	4	loggerhead	3	3	0	0	432	NED	NED	OTHATL
2000	4	S01031	2	loggerhead	1	1	0	0	352	SAB	SEC	US ATL
2000	2	K02001	3	turtle	1	1	0	0	360	FEC	SEC	US ATL
2000	2	R01005	3	turtle	1	1	0	0	300	FEC	SEC	US ATL
2000	2	P01056	4	turtle	1	1	0	0	870	GOM	GOM	GOM
2000	2	P01056	7	turtle	1	1	0	0	850	GOM	GOM	GOM
2000	2	J02001	5	turtle	1	1	0	0	580	SAB	SEC	US ATL

Table 7. Quarterly (QTR) observed (obs.) and estimated (est.) total bycatch of A) marine mammals and B) marine turtles in the U.S. Atlantic longline fishery for 1999-2000, stratified by species-NAREA-quarter. The four categories are the TOTAL (T) number of animals, the number of animals out of the total which were DEAD (D), seriously-INJURED (S) (this category only applies to marine mammals), of UNKnown condition (U) (no marine mammal fell into this category in 1999-2000), and ALIVE (A) upon return to the sea. The estimated coefficients of variation (CV_*) for the bycatch estimates, and upper and lower 95% lognormal confidence bounds (U_*, L_*) are also given. The proportion of positive bycatch (PPT) is the proportion of sets observed in the stratum (N) in which at least one marine mammal or turtle was captured; PP* is the subset of PPT in which the animal was observed to be dead (D), seriously-injured (S)/unknown(U) and alive (A). Decimals are rounded to the nearest hundredth. In certain species-NAREA-quarter strata where there is reported effort but no observed effort and therefore no observed bycatch (.), a non-zero bycatch estimate may in some cases be obtained by pooling the bycatch rate across strata.

A) Marine mammal

	QTR	NAREA	N	PPT	obs.	est.	CV_T	U_T	L_T	PPD	obs.	est.	CV_D	U_D	L_D	PPS	obs.	est.	CV_S	U_S	L_S	PPA	obs.	est.	CV_A	U_A	L_A
					TOTAL						DEAD						INJURED						ALIVE				
1999																											
Risso's dolphin	2	NEC	62	0.02	.	3	1	15	1	0	..	0				0.02	.	3	1	15	1	0	..	0			
Risso's dolphin	4	NEC	27	0.04	1	20	1	102	4	0	0	0				0.04	1	20	1	102	4	0	0	0			
marine mammal	3	NED	17	0.06	1	12	1	61	2	0	0	0				0	0	0				0.06	1	12	1	61	2
marine mammal	4	NED	40	0.03	.	2	1	10	0	0	..	0				0	.	0				0.03	..	2	1	10	0
pilot whale	2	NEC	62	0.03	.	33	0.78	128	9	0.02	..	8	1	41	2	0.03	.	0	0.73	0	0	0	..	0			
pilot whale	3	NEC	25	0.08	4	344	0.78	1330	89	0.04	1	86	1	440	17	0.08	3	0				0	0	0			
pilot whale	2	SEC	60	0.02	1	8	1	41	2	0	0	0				0.02	1	8	1	41	2	0	0	0			
2000																											
common dolphin	3	NEC	53	0.02	1	32	1	164	6	0	0	0				0	0	0				0.02	1	32	1	164	6
Risso's dolphin	4	NEC	32	0.03	1	29	1	148	6	0	0	0				0	0	0				0.03	1	29	1	148	6
Risso's dolphin	2	NED	47	0.02	.	3	1	15	1	0	.	0				0.02	.	3	1	15	1	0	.	0			
Risso's dolphin	4	NED	9	0.11	1	20	1	102	4	0	0	0				0.11	1	20	1	102	4	0	0	0			
Risso's dolphin	3	SEC	18	0.06	1	41	1	210	8	0.06	1	41	1	210	8	0	0	0				0	0	0			
pilot whale	1	NEC	5	0.2	1	20	1	102	4	0	0	0				0.2	1	20	1	102	4	0	0	0			
pilot whale	3	NEC	53	0.04	3	89	0.82	361	22	0	0	0				0.04	3	0				0	0	0			
pilot whale	4	NEC	32	0.06	2	68	0.71	238	19	0	0	0				0	0	0				0.06	2	68	0.71	238	19
pilot whale	2	SEC	54	0.02	1	30	1	153	6	0	0	0				0	0	0				0.02	1	30	1	153	6
pilot whale	4	SEC	28	0.04	1	24	1	123	5	0.04	1	24	1	123	5	0	0	0				0	0	0			
pygmy sperm whale	1	SEC	24	0.04	1	28	1	143	5	0	0	0				0.04	1	28	1	143	5	0	0	0			
whale	3	NEC	53	0.02	1	19	1	97	4	0	0	0				0.02	1	19	1	97	4	0	0	0			

B) Marine turtle

	QTR	NAREA	N	PPT	obs.	est.	CV_T	U_T	L_T	PPD	obs.	est.	CV_D	U_D	L_D	PPU	obs.	est.	CV_U	U_U	L_U	PPA	obs.	est.	CV_A	U_A	L_A
					TOTAL						DEAD						UNK						ALIVE				
1999																											
leatherback	1	CAR	17	0.12	2	20	0.69	67	6	0	0	0				0.02	1	24	1	123	5	0	0	0			
leatherback	2	CAR	17	0.12	.	4	0.69	13	1	0	.	0				0	.	0				0.02	.	4	1	20	1
leatherback	4	GOM	53	0.02	1	28	1	143	5	0	0	0				0	0	0				0.02	1	14	1	72	3
leatherback	2	NEC	62	0.05	.	31	0.69	105	9	0	.	0				0	0	0				0.04	1	25	1	128	5
leatherback	4	NEC	27	0.11	4	182	0.69	617	54	0	0	0				0	0	0				0.12	2	20	0.69	67	6
leatherback	1	NED	40	0.35	.	3	0.4	6	1	0	.	0				0.13	.	1	0.43	2	0	0.33	.	2	0.41	4	1
leatherback	2	NED	23	0.17	5	12	0.5	30	5	0	0	0				0	0	0				0.15	2	161	0.68	538	48
leatherback	3	NED	17	0.59	27	387	0.31	696	215	0	0	0				0	.	0				0.12	.	4	0.69	13	1
leatherback	4	NED	40	0.35	.	93	0.4	200	43	0	.	0				0	.	0				0.05	.	31	0.69	105	9
leatherback	1	SEC	13	0.15	2	161	0.68	538	48	0	0	0				0	0	0				0.17	5	12	0.5	30	5
leatherback	2	SEC	60	0.05	3	53	0.63	164	17	0	0	0				0	0	0				0.05	3	53	0.63	164	17
leatherback	3	SEC	17	0.06	1	42	1	215	8	0	0	0				0.29	7	102	0.43	228	46	0.53	20	275	0.32	508	149
loggerhead	1	CAR	17	0.24	5	50	0.48	121	21	0	0	0				0	0	0				0.06	1	42	1	215	8
loggerhead	2	CAR	17	0.24	.	10	0.48	24	4	0	.	0				0	0	0				0.02	1	28	1	143	5
loggerhead	4	CAR	17	0.24	.	1	0.48	2	0	0	.	0				0	0	0				0.11	4	182	0.69	617	54
loggerhead	4	GOM	53	0.02	3	38	1	194	7	0	0	0				0.13	.	21	0.43	47	9	0.33	.	70	0.41	152	32
loggerhead	2	NEC	62	0.11	.	42	0.39	87	20	0.02	.	3	1	15	1	0	0	0				0.24	5	50	0.48	121	21
loggerhead	4	NEC	27	0.26	7	250	0.39	519	120	0.04	1	20	1	102	4	0.05	.	0	0.68	0	0	0.5	.	3	0.3	5	2
loggerhead	1	NED	40	0.53	.	3	0.29	5	2	0	.	0				0	.	0				0.24	.	10	0.48	24	4
loggerhead	2	NED	23	0.39	18	42	0.34	81	22	0	0	0				0	.	0				0.1	.	39	0.42	87	18
loggerhead	3	NED	17	0.71	26	352	0.24	559	222	0	0	0				0	0	0				0.39	18	42	0.34	81	22
loggerhead	4	NED	40	0.53	.	121	0.29	211	69	0	.	0				0	0	0				0.03	3	37	0.7	128	11
loggerhead	2	SEC	60	0.03	3	37	0.7	128	11	0	0	0				0.12	2	24	0.68	81	7	0.65	24	328	0.25	534	202
loggerhead	4	SEC	17	0.12	2	48	0.68	162	14	0	0	0				0	.	0				0.24	.	1	0.48	2	0
turtle	1	GOM	47	0.02	1	24	1	123	5	0	0	0				0	0	0				0.02	3	38	1	194	7
turtle	4	GOM	53	0.02	1	14	1	72	3	0	0	0				0	0	0				0.22	6	231	0.42	513	104
turtle	2	NEC	62	0.02	.	4	1	20	1	0	.	0				0.05	.	5	0.68	17	1	0.5	.	117	0.3	207	66
turtle	4	NEC	27	0.04	1	25	1	128	5	0	0	0				0	0	0				0.12	2	48	0.68	162	14
2000																											
leatherback	1	CAR	17	0.12	.	24	0.69	81	7	0	.	0				0	0	0				0.04	2	42	0.7	145	12
leatherback	2	CAR	17	0.12	.	9	0.69	30	3	0	.	0				0	0	0				0.06	3	86	0.59	250	30
leatherback	4	CAR	17	0.12	.	8	0.69	27	2	0	.	0				0	.	0				0.12	.	24	0.69	81	7
leatherback	1	GOM	31	0.03	1	32	1	164	6	0	0	0				0	0	0				0.03	1	32	1	164	6
leatherback	2	GOM	51	0.08	4	82	0.49	202	33	0	0	0				0	0	0				0.07	1	9	1	46	2
leatherback	3	GOM	45	0.09	5	121	0.51	309	47	0	0	0				0	0	0				0.08	2	86	0.7	298	25
leatherback	2	NEC	17	0.06	1	12	1	61	2	0	0	0				0	.	0				0.12	.	9	0.69	30	3
leatherback	3	NEC	53	0.02	1	18	1	92	4	0	0	0				0	0	0				0.08	4	82	0.49	202	33
leatherback	4	NEC	32	0.09	3	85	0.57	239	30	0	0	0				0	0	0				0.06	1	12	1	61	2
leatherback	2	NED	47	0.15	.	26	0.59	76	9	0	.	0				0	.	0				0.15	.	26	0.59	76	9
leatherback	3	NED	38	0.13	7	81	0.45	188	35	0	0	0				0	.	0				0.07	.	4	1	20	1
leatherback	4	NED	9	0.22	4	75	0.74	273	21	0	0	0				0	0	0				0.09	5	121	0.51	309	47

	QTR	NAREA	N	PPT	obs.	est.	CV_T	U_T	L_T	PPD	obs.	est.	CV_D	U_D	L_D	PPU	obs.	est.	CV_U	U_U	L_U	PPA	obs.	est.	CV_A	U_A	L_A
					TOTAL						DEAD						UNK						ALIVE				
	2000																										
leatherback	1	OFS	15	0.07	1	9	1	46	2	0	0	0				0	0	0				0.02	1	18	1	92	4
leatherback	2	OFS	15	0.07	.	4	1	20	1	0	.	0				0	0	0				0.13	7	81	0.45	188	35
leatherback	4	OFS	15	0.07	.	2	1	10	0	0	.	0				0	0	0				0.06	1	41	1	210	8
leatherback	1	SEC	24	0.08	2	86	0.7	298	25	0	0	0				0	.	0				0.12	.	8	0.69	27	2
leatherback	3	SEC	18	0.06	1	41	1	210	8	0	0	0				0	0	0				0.09	3	85	0.57	239	30
leatherback	4	SEC	28	0.07	2	54	0.7	186	16	0	0	0				0	0	0				0.22	4	75	0.74	273	21
loggerhead	1	CAR	17	0.24	.	58	0.48	141	24	0	.	0				0	.	0				0.07	.	2	1	10	0
loggerhead	2	CAR	17	0.24	.	21	0.48	51	9	0	.	0				0	0	0				0.07	2	54	0.7	186	16
loggerhead	4	CAR	17	0.24	.	20	0.48	49	8	0	.	0				0	.	0				0.24	.	58	0.48	141	24
loggerhead	1	GOM	31	0.06	2	89	0.72	318	25	0	0	0				0	0	0				0.06	2	89	0.72	318	25
loggerhead	2	NEC	17	0.06	1	18	1	92	4	0	0	0				0	0	0				0.2	4	35	0.56	97	13
loggerhead	3	NEC	53	0.26	15	373	0.26	614	226	0	0	0				0	0	0				0.04	1	28	1	143	5
loggerhead	4	NEC	32	0.06	3	86	0.79	335	22	0	0	0				0	.	0				0.24	.	21	0.48	51	9
loggerhead	2	NED	47	0.21	.	46	0.52	120	18	0	.	0				0	0	0				0.06	1	18	1	92	4
loggerhead	3	NED	38	0.21	10	122	0.37	248	60	0	0	0				0	.	0				0.21	.	46	0.52	120	18
loggerhead	4	NED	9	0.22	7	166	0.66	541	51	0	0	0				0	.	0				0.2	.	16	0.56	44	6
loggerhead	1	OFS	15	0.2	4	35	0.56	97	13	0	0	0				0	0	0				0.07	4	88	0.51	224	35
loggerhead	2	OFS	15	0.2	.	16	0.56	44	6	0	.	0				0.02	1	18	1	92	4	0.25	14	356	0.27	601	211
loggerhead	4	OFS	15	0.2	.	6	0.56	17	2	0	.	0				0	0	0				0.21	10	122	0.37	248	60
loggerhead	1	SEC	24	0.04	1	28	1	143	5	0	0	0				0.06	1	41	1	210	8	0	0	0			
loggerhead	2	SEC	54	0.07	4	88	0.51	224	35	0	0	0				0	.	0				0.24	.	20	0.48	49	8
loggerhead	3	SEC	18	0.06	1	41	1	210	8	0	0	0				0	0	0				0.06	3	86	0.79	335	22
loggerhead	4	SEC	28	0.07	2	43	0.69	147	13	0	0	0				0	0	0				0.22	7	166	0.66	541	51
turtle	2	GOM	51	0.04	2	42	0.7	145	12	0	0	0				0	.	0				0.2	.	6	0.56	17	2
turtle	2	SEC	54	0.06	3	86	0.59	250	30	0	0	0				0	0	0				0.07	2	43	0.69	147	13

Table 8. Estimates from Table 7 summed by species-NAREA.

A) Marine mammal

	NAREA	N	obs.	est.	CV_T	U_T	L_T	obs.	est.	CV_D	U_D	L_D	obs.	est.	CV_S	U_S	L_S	obs.	est.	CV_A	U_A	L_A
			TOTAL					DEAD					INJURED					ALIVE				
1999																						
DOLPHIN RISSOS	NEC	89	1	23	1	117	5	0	0				1	23	1	117	5	0	0			
MARINE MAMMAL	NED	57	1	14	0.99	71	2	0	0				0	0				1	14	0.99	71	2
PILOT WHALE	NEC	87	4	377	0.78	1458	98	1	94	1	481	19	3	0		0	0	0	0			
PILOT WHALE	SEC	60	1	8	1	41	2	0	0				1	8	1	41	2	0	0			
2000																						
COMMON DOLPHIN	NEC	53	1	32	1	164	6	0	0				0	0				1	32	1	164	6
DOLPHIN RISSOS	NEC	32	1	29	1	148	6	0	0				0	0				1	29	1	148	6
DOLPHIN RISSOS	NED	56	1	23	1	117	5	0	0				1	23	1	117	5	0	0			
DOLPHIN RISSOS	SEC	18	1	41	1	210	8	1	41	1	210	8	0	0				0	0			
PILOT WHALE	NEC	90	6	177	0.8	701	45	0	0				4	20	1	102	4	2	68	0.71	238	19
PILOT WHALE	SEC	82	2	54	1	276	11	1	24	1	123	5	0	0				1	30	1	153	6
WHALE	NEC	53	1	19	1	97	4	0	0				1	19	1	97	4	0	0			
PYGMY SPERM	SEC	24	1	28	1	143	5	0	0				1	28	1	143	5	0	0			

B) Marine turtle

	NAREA	N	obs.	est.	CV_T	U_T	L_T	obs.	est.	CV_D	U_D	L_D	obs.	est.	CV_U	U_U	L_U	obs.	est.	CV_A	U_A	L_A
			TOTAL					DEAD					UNK					ALIVE				
1999																						
TURTLE	GOM	100	2	38	1	195	8	0	0				1	24	1	123	5	1	14	1	72	3
TURTLE	NEC	89	1	29	1	148	6	0	0				0	0				1	29	1	148	6
LEATHERBACK	CAR	34	2	24	0.68	80	7	0	0				0	0				2	24	0.68	80	7
LEATHERBACK	GOM	53	1	28	1	143	5	0	0				0	0				1	28	1	143	5
LEATHERBACK	NEC	89	4	213	0.69	722	63	0	0				0	0				4	213	0.69	722	63
LEATHERBACK	NED	120	32	495	0.33	932	264	0	0				7	124	0.43	277	55	25	359	0.35	694	187
LEATHERBACK	SEC	90	6	256	0.73	917	73	0	0				0	0				6	256	0.73	917	73
LOGGERHEAD	CAR	51	5	61	0.47	147	25	0	0				0	0				5	61	0.47	147	25
LOGGERHEAD	GOM	53	3	38	1	194	7	0	0				0	0				3	38	1	194	7
LOGGERHEAD	NEC	89	7	292	0.39	606	140	1	23	1	117	5	0	0				6	270	0.42	600	122
LOGGERHEAD	NED	120	44	518	0.26	856	315	0	0				2	29	0.69	98	8	42	490	0.27	827	292
LOGGERHEAD	SEC	77	5	85	0.69	290	25	0	0				0	0				5	85	0.69	290	25
2000																						
TURTLE	GOM	51	2	42	0.7	145	12	0	0				0	0				2	42	0.7	145	12
TURTLE	SEC	54	3	86	0.59	250	30	0	0				0	0				3	86	0.59	250	30
LEATHERBACK	CAR	51		41	0.68	138	12		0					0					41	0.68	138	12
LEATHERBACK	GOM	127	10	235	0.58	675	86	0	0				0	0				10	235	0.58	675	86
LEATHERBACK	NEC	102	5	115	0.69	392	36	0	0				0	0				5	115	0.69	392	36
LEATHERBACK	NED	94	11	182	0.6	537	65	0	0				0	0				11	182	0.6	537	65
LEATHERBACK	OFS	45	1	15	0.99	76	3	0	0				0	0				1	15	0.99	76	3
LEATHERBACK	SEC	70	5	181	0.77	694	49	0	0				0	0				5	181	0.77	694	49
LOGGERHEAD	CAR	51		99	0.48	241	41		0					0					99	0.48	241	41
LOGGERHEAD	GOM	31	2	89	0.72	318	25	0	0				0	0				2	89	0.72	318	25
LOGGERHEAD	NEC	102	19	477	0.41	1041	252	0	0				1	18	1	92	4	18	460	0.43	1028	237
LOGGERHEAD	NED	94	17	334	0.55	909	129	0	0				0	0				17	334	0.55	909	129
LOGGERHEAD	OFS	45	4	57	0.56	158	21	0	0				0	0				4	57	0.56	158	21
LOGGERHEAD	SEC	124	8	200	0.73	724	61	0	0				1	41	1	210	8	7	159	0.66	514	53

Table 9. Estimates from Table 7 summed by species-MAREA.

A) Marine mammal

	MAREA	N	obs.	est.	CV_T	U_T	L_T	obs.	est.	CV_D	U_D	L_D	obs.	est.	CV_S	U_S	L_S	obs.	est.	CV_A	U_A	L_A
			TOTAL					DEAD					INJURED					ALIVE				
1999																						
Risso's dolphin	US ATL	89	1	23	1	117	5	0	0				1	23	1	117	5	0	0			
marine mammal	OTHATL	57	1	14	0.99	71	2	0	0				0	0				1	14	0.99	71	2
pilot whale	US ATL	147	5	385	0.79	1499	100	1	94	1	481	19	4	8	1	41	2	0	0			
2000																						
common dolphin	US ATL	53	1	32	1	164	6	0	0				0	0				1	32	1	164	6
Risso's dolphin	OTHATL	56	1	23	1	117	5	0	0				1	23	1	117	5	0	0			
Risso's dolphin	US ATL	50	2	70	1	358	14	1	41	1	210	8	0	0				1	29	1	148	6
pilot whale	US ATL	172	8	231	0.85	977	56	1	24	1	123	5	4	20	1	102	4	3	98	0.8	391	25
whale	US ATL	53	1	19	1	97	4	0	0				1	19	1	97	4	0	0			
pygmy sperm whale	US ATL	24	1	28	1	143	5	0	0				1	28	1	143	5	0	0			

B) Marine turtle

	MAREA	N	obs.	est.	CV_T	U_T	L_T	obs.	est.	CV_D	U_D	L_D	obs.	est.	CV_S	U_S	L_S	obs.	est.	CV_A	U_A	L_A
			TOTAL					DEAD					INJURED					ALIVE				
1999																						
turtle	GOM	100	2	38	1	195	8	0	0				1	24	1	123	5	1	14	1	72	3
turtle	US ATL	89	1	29	1	148	6	0	0				0	0				1	29	1	148	6
leatherback	GOM	53	1	28	1	143	5	0	0				0	0				1	28	1	143	5
leatherback	OTHATL	154	34	519	0.35	1012	271	0	0				7	124	0.43	277	55	27	383	0.37	774	194
leatherback	US ATL	179	10	469	0.71	1639	136	0	0				0	0				10	469	0.71	1639	136
loggerhead	GOM	53	3	38	1	194	7	0	0				0	0				3	38	1	194	7
loggerhead	OTHATL	171	49	579	0.29	1003	340	0	0				2	29	0.69	98	8	47	551	0.3	974	317
loggerhead	US ATL	166	12	377	0.46	896	165	1	23	1	117	5	0	0				11	355	0.5	890	147
2000																						
turtle	GOM	51	2	42	0.7	145	12	0	0				0	0				2	42	0.7	145	12
turtle	US ATL	54	3	86	0.59	250	30	0	0				0	0				3	86	0.59	250	30
leatherback	GOM	127	10	235	0.58	675	86	0	0				0	0				10	235	0.58	675	86
leatherback	OTHATL	190	12	238	0.64	751	80	0	0				0	0				12	238	0.64	751	80
leatherback	US ATL	172	10	296	0.74	1086	85	0	0				0	0				10	296	0.74	1086	85
loggerhead	GOM	31	2	89	0.72	318	25	0	0				0	0				2	89	0.72	318	25
loggerhead	OTHATL	190	21	490	0.53	1308	191	0	0				0	0				21	490	0.53	1308	191
loggerhead	US ATL	226	27	677	0.52	1765	313	0	0				2	59	1	302	12	25	619	0.49	1542	290

Table 10. Estimates in Table 7 summed by year and species.

A) Marine mammal

	obs.	est.	CV_T	U_T	L_T	obs.	est.	CV_D	U_D	L_D	obs.	est.	CV_S	U_S	L_S	obs.	est.	CV_A	U_A	L_A
	TOTAL					DEAD					INJURED					ALIVE				
1999																				
Risso's dolphin	1	23	1	117	5	0	0				1	23	1	117	5	0	0			
marine mammal	1	14	0.99	71	2	0	0				0	0				1	14	0.99	71	2
pilot whale	5	385	0.79	1499	100	1	94	1	481	19	4	8	1	41	2	0	0			
2000																				
common dolphin	1	32	1	164	6	0	0				0	0				1	32	1	164	6
Risso's dolphin	3	93	1	475	19	1	41	1	210	8	1	23	1	117	5	1	29	1	148	6
pilot whale	8	231	0.85	977	56	1	24	1	123	5	4	20	1	102	4	3	98	0.8	391	25
whale	1	19	1	97	4	0	0				1	19	1	97	4	0	0			
pygmy sperm whale	1	28	1	143	5	0	0				1	28	1	143	5	0	0			

B) Marine turtle

	obs.	est.	CV_T	U_T	L_T	obs.	est.	CV_D	U_D	L_D	obs.	est.	CV_U	U_U	L_U	obs.	est.	CV_A	U_A	L_A
	TOTAL					DEAD					UNK					ALIVE				
1999																				
turtle	3	67	1	343	14	0	0				1	24	1	123	5	2	43	1	220	9
leatherback	45	1016	0.55	2794	412	0	0				7	124	0.43	277	55	38	880	0.59	2556	335
loggerhead	64	994	0.39	2093	512	1	23	1	117	5	2	29	0.69	98	8	61	944	0.41	2058	471
2000																				
turtle	5	128	0.63	395	42	0	0				0	0				5	128	0.63	395	42
leatherback	32	769	0.66	2512	251	0	0				0	0				32	769	0.66	2512	251
loggerhead	50	1256	0.54	3391	529	0	0				2	59	1	302	12	48	1198	0.53	3168	506

Table 11. Summary of the A) release condition and B) hook location of marine turtles observed caught in U.S. pelagic longline fishery in 1999-2000.

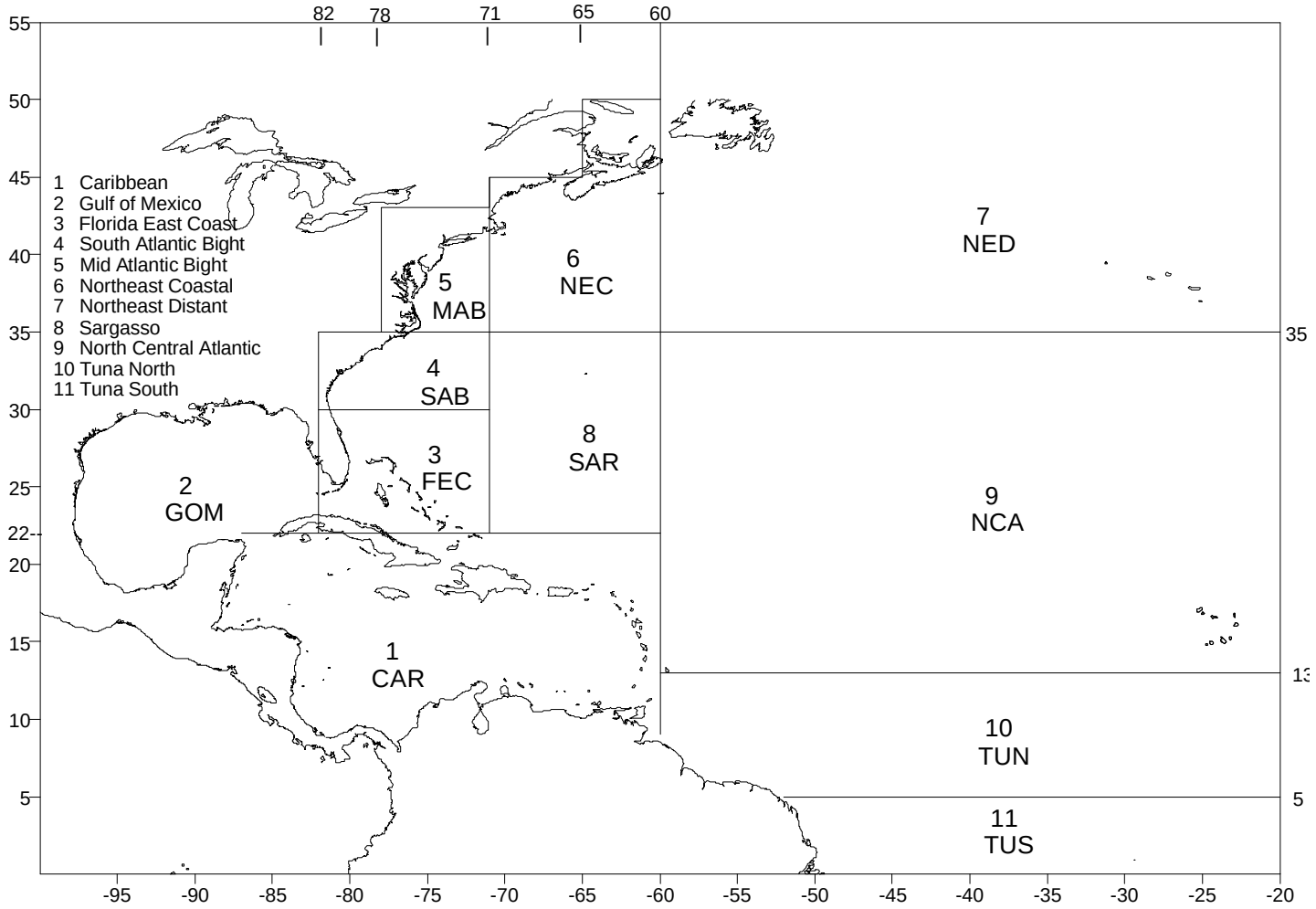
A)

		RELEASE CONDITION				
year	species	alive, injured	alive, uninjured	fresh dead	other, unknown	Total
1999	Leatherback	30	8	0	7	45
	Loggerhead	60	1	1	2	64
	unknown	2	0	0	1	3
1999 Total		92	9	1	10	112
2000	Leatherback	30	2	0	0	32
	Loggerhead	46	2	0	2	50
	unknown	5	0	0	0	5
2000 Total		81	4	0	2	87
Grand Total		173	13	1	12	199

B)

		HOOK LOCATION									
year	species	beak/mouth	carapace/ plastron	flipper	head/beak	head/neck (external)	ingested (throat/ esophagus)	not hooked	unknown beak/ mouth	unknown other	Total
1999	Leatherback	1	0	16	0	1	0	8	9	10	45
	Loggerhead	8	0	3	0	2	10	1	37	3	64
	unknown	2	0	0	0	0	0	0	0	1	3
1999 Total		11	0	19	0	3	10	9	46	14	112
2000	Leatherback	4	5	13	0	3	0	1	0	6	32
	Loggerhead	23	0	3	3	0	15	0	0	6	50
	unknown	1	0	0	0	0	1	0	1	2	5
2000 Total		28	5	16	3	3	16	1	1	14	87
Grand Total		39	5	35	3	6	26	10	47	28	199

Figure 1. The geographical zones used to classify observed and reported U.S. Atlantic pelagic longline fishing effort. For the purpose of estimation, several strata were combined. The Southeast Coastal (SEC) stratum was defined as areas 3 and 4; the Northeast Coastal (NEC) stratum was defined as areas 5 and 6; and the Offshore South (OFS) was defined as areas 8, 9, 10, and 11. Larger regions were also defined as those generally within the US Atlantic EEZ (USATL: SEC, NEC), other Atlantic waters (OTHATL: OFS, areas 1 and 7); and the Gulf of Mexico (GOM: area 2).



Appendix I. Observer comments relating to the condition of marine mammals observed caught in 1999-2000 by U.S. pelagic longline vessels operating in the North Atlantic. Unique trip identifier (TRIP #), date landed, common name of species taken, latitude (Lat), longitude (Lon), and estimated body length are also given. Injury codes 1-15 refer to criteria used to classified animals as "seriously injured":

1=Loss of/damage to appendage/jaw 2=Inability to use appendage(s) 3=Asymmetry in body shape
4=Rupture/puncture of eyeball 5=Inability to swim or dive 6=Ingestion of gear
7=Mouth is bound by the gear 8=Cetacean is hooked internally (e.g., in the mouth)
9=Animal is anchored 10=Line/net entangling the animal is likely to further entangle the animal
11=Visible blood flow. 12=Swelling or hemorrhage. 13=Laceration.
14=Listlessness/inability to defend itself. 15=Equilibrium imbalance.

Criteria #1-10 comprise the type of injury that is highly likely to directly prevent or impair movement or feeding, and thus should always be considered serious injury. Criteria #11-15 do not necessarily indicate that movement or feeding has been directly prevented or impaired and will not automatically be considered serious. A '?' beside the code number indicates that such injury was probably sustained. Animals with injuries matching at least one of criteria 1-10 are considered to be seriously injured (S.I. = 'Y') and may be assumed to have died, unless observers' comments suggest otherwise. Other injuries are not considered serious (S.I. = 'N') and the animal is assumed to have survived. D=dead upon retrieval.

Trip #	Date Landed	Common Name	Lat (deg min)	Lon	Est. Length (cm)	Injury Codes	S.I.	Observer Comments
MARINE MAMMALS								
T45	6/7/99	pilot whale	32 21	77 34	152	8,10	Y	hooked in mouth; alive; left with ~54 ft of leader.
F69	8/11/99	marine mammal	45 56	41 47	762	8	Y	unidentified whale; hooked on gangion; mainline parted off and gagion snap slipped off; swam away.
W05	8/28/99	pilot whale	37 38	74 01	350	10	Y	accompanied by 2 other animals, ~18 ft mainline still wrapped around tail; swam away.
W05	8/28/99	pilot whale	37 38	74 01	275	dead	D	2 animals nearby, wrapped in mainline; both sides of mainline cut to discard carcass; sank.
W05	8/28/99	pilot whale	37 38	74 01	175	8,10	Y	caught with hook in mouth; mono cut with 8 ft of line attached; swam away.
W05	8/28/98	pilot whale	37 27	74 15	275	10	Y	tail wrapped in mainline; swam downward immediately; too quick for picture.
A31114	10/16/99	Risso's dolphin	39 43	71 32	214	8,10	Y	hook appeared to be in mouth but could not be sure as animal never broke surface; leader cut ~36 ft. rom animal.
S01022	2/14/00	Pygmy sperm whale	28 10	74 21	350	8?	Y	id by coloration, shape of head, shape and position of dorsal fin; hook location not known, released with ~ 60 ft. leader.

Trip #	Date Landed	Common Name	Lat (deg min)	Lon	Est. Length (cm)	Injury Codes	S.I.	Observer Comments
W01010	2/24/00	pilot whale	35 59	74 47	275	10	Y	entangled in mainline, 12-18 ft. of mainline wrapped around caudal peduncle at time of release; id confirmed from description, black dorsal forward on body and thick peduncle; photo poor.
K02001	6/4/00	pilot whale	27 36	79 49	240	10	N	entangled in mainline, a loop in the mouth and a tangle around the tail; released apparently unharmed; all gear removed.
W01012	7/24/00	pilot whale	37 26	74 18	300	8	Y	hooked in mouth; leader cut; ~ 24 ft. leader.
W01012	7/24/00	pilot whale	37 26	74 18	---	8	Y	hooked in mouth; broke leader; ~ 12 ft. leader.
T01054	8/23/00	pilot whale	40 00	68 59	183	8	Y	hooked in mouth with 24 ft. leader attached; released in excellent condition.
T01054	8/23/00	common dolphin	40 29	67 00	152	1	N	tail hooked with 2 ft. of leader attached; released in excellent condition.
W01013	8/25/00	unidentified whale	39 52	70 37	500	8	Y	appeared to be baby finback; only saw back for instant; small dorsal to rear; didn't see head; grey; broke leader; 60 ft. leader and hook attached.
S01028	9/7/00	Risso's dolphin	31 42	78 35	157	dead	D	wrapped in mainline, no hook involved; all gear removed.
Y01001	10/18/00	pilot whale	35 48	74 34	240	1	N	leader hooked or wrapped around dorsal fin; very lively when released; 20 ft. line attached to hook when cut.
T01055	10/7/00	Risso's dolphin	37 44	74 08	243	1	N	hooked near keel, cut loose with 24 ft. of 400 lb. mono leader; swam away briskly; good condition.
T01055	10/7/00	pilot whale	37 32	74 17	213	1	N	leader hooked around tail, cut loose with 15 ft. of 700 lb. mono mainline; swam away slowly; condition good but tired.
J02005	11/14/00	Risso's dolphin	42 17	51 42	360	8	Y	hooked in the mouth on single leader; not tangled; ~12 ft. long, dark grey with a lot of scarring on body;robust; round head, no beak; cut leader ~ 6 ft. from hook; swam down deep and seemed fine.
S01032	12/16/00	pilot whale	28 25	78 40	450	dead	D	mouth hooked, sect. 3 hook 350, 1230 hrs, $28^{o}20^{'}$N $78^{o}49^{'}$W; all mono removed, cut at hook.

Appendix II. Sea turtle life history form

TRIP ☐☐☐☐☐☐ YEAR☐☐MONTH☐☐DAY☐☐
SET/HAUL/TOW☐☐☐ GEAR: ☐Longline ☐Gill Net ☐Trawl

LATITUDE ☐☐deg☐☐.☐min N / S LONGITUDE☐☐☐deg☐☐.☐min E / W
SPECIMEN NUMBER BY TRIP ☐☐☐

Did turtle slide out/escape from gear?☐Y / N Was turtle brought on board? ☐Y / N

Was light stick on hook (Y/N) ☐ Color? ☐
If No, number of gangions to next light stick☐☐ Color? ☐
(*light stick colors*: White, Pink, Black, Green, Blue, Red, Yellow, Purple, Other, Unknown)

Number of gangions to next float☐☐

IDENTIFICATION (see back) Photos Taken? ☐Y / N

SPECIES:	Leatherback	Loggerhead	Kemp's ridley	Green	Hawksbill	Unknown
	☐	☐	☐	☐	☐	☐

CONDITION OF TURTLE

☐Previously dead ☐Fresh dead ☐Comatose (resuscitated)
☐Alive, injured (describe) ☐Alive, uninjured ☐Other/Unknown (describe)

If hooked, record location: ☐Ingested (Throat/Esophagus) ☐Beak/Mouth ☐Head/Neck (external)
☐Flipper ☐Carapace/Plastron ☐Other Soft Tissue (external)
☐Unknown

Was hook removed from this animal? ☐Y / N
Was animal entangled in gear? ☐Y / N
How much gear (linear feet) was left on turtle when released? ☐☐☐ ft. (estimated)
Estimated Carapace length (notch-to-tip straight line)_____cm

---

DIMENSIONS (cm)

	Curved (measuring tape) Standard Measurements	Straight Line (calipers) Standard Measurements	Straight Line (calipers)
Carapace Length	☐☐☐.☐ notch-to-tip	☐☐☐.☐notch-to-tip	☐☐☐.☐notch-to-notch
Carapace Width	☐☐☐.☐	☐☐☐.☐	

TAGS (identify address on each tag in the comments section)

Flipper Tag Number	Metal or Plastic (2)	(1) LF, RF, LR, RR	Position (Flipper) Applied by Observer(2)	Already Present (1) or	Were Tags Removed?
☐☐☐☐☐☐	☐	☐☐	☐		☐Y / N
☐☐☐☐☐☐	☐	☐☐	☐		☐Y / N
☐☐☐☐☐☐	☐	☐☐	☐		☐Y / N
☐☐☐☐☐☐	☐	☐☐	☐		☐Y / N
PIT Tag ☐☐☐☐☐☐☐☐☐☐		☐☐	☐	Scanned?	☐Y / N

Living Tag (describe)_____ Other Tags (describe) _____

FINAL DISPOSITION

☐Discarded Marked Carcass ☐Discarded Unmarked Carcass ☐Salvaged Carcass
☐Released Alive ☐Taken to Holding Facility ☐Unknown (explain)

Release Location:Latitude ☐☐deg☐☐.☐min N/S Longitude ☐☐☐deg☐☐.☐min E/W
Biological Samples Taken? ☐Y / N (itemize below)

ADDITIONAL COMMENTS (list all biological samples collected):

_____
_____
_____
_____
_____

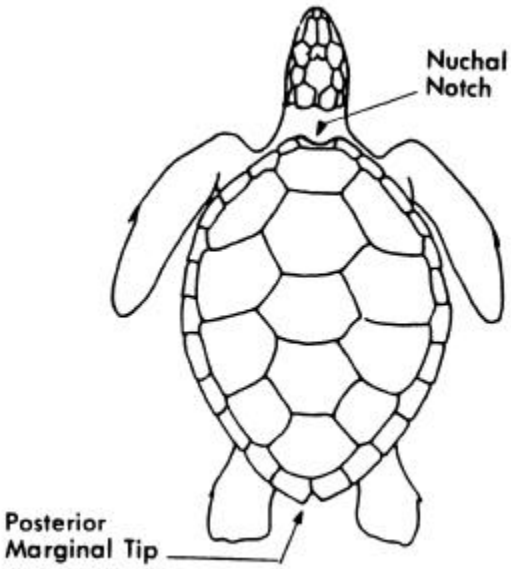
TURTLE KEY:

A. Shell black and leathery with longitudinal ridges……. LEATHERBACK
A. Shell not black and is hard……. B

B. Costal (lateral) scutes 4…….. C
B. Costal (lateral) scutes 5…….. D

C. Two large scutes (1 pair) between eyes, shell smooth, mouth normal, shell color light brown with yellow star-burst patterns, top of flippers and head light brown…… GREEN
C. Four scutes (2 pairs) between eyes, scutes overlaping, upper jaw has overhanging beak, shell color dark brown with light brown blotches. Top of flippers and head black…… HAWKSBILL

D. Lower shell has 3 inframarginals, upper shell, head, and flippers are reddish brown……. LOGGERHEAD
D. Lower shell has 4 inframarginals with pores, upper shell, head, and flippers are greenish gray…… KEMP'S RIDLEY



IDENTIFICATION CRITERIA

Number of:
Left Costal Scutes ☐ Overlapping Scutes? ☐Y / N / U
Right Costal Scutes ☐ Inframarginal Pores? ☐Y / N / U
Vertebral Scutes ☐ 1 Pair Prefrontal Scales? ☐Y / N / U
Inframarginal Scutes☐ Lacks Bony Shell? ☐Y / N

Dorsal Coloration ☐Black ☐ Orange/Red-Brown ☐Brown
☐Gray-Green ☐ other_____

Appendix III. Summary of information on 1999-2000 incidental takes of marine turtles in the U.S. pelagic longline fishery based on the Sea Turtle Life History Form filled out by observers for each observed take.

											No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
W07	10	21	1999	39	53	69	51	Leatherback	alive, injured	beak/mouth	0	0	2	150	hooked in mouth
W07	10	21	1999	39	53	69	51	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	2	60	swallowed hook
W07	10	23	1999	38	37	72	48	Loggerhead	alive, injured	head/neck (external)	0	0	2	65	hooked on side of mouth
W07	10	23	1999	38	37	72	48	Leatherback	alive, injured	unknown beak/mouth	1	0	0	150	spit hook of of mouth
W07	10	26	1999	39	54	70	34	Loggerhead	alive, injured	beak/mouth	0	0	1	80	hooked in tongue
W07	10	28	1999	39	25	69	31	Leatherback	alive, injured	not hooked		1	0	125	wrapped in mainline,untangled by crew
W07	10	31	1999	39	49	69	53	Loggerhead	fresh dead	beak/mouth		0	0	57	hooked in mouth
W07	11	1	1999	39	43	70	9	Loggerhead	alive, injured	beak/mouth	0	0	0	60	hooked in mouth,only hook left
W08	11	26	1999	37	43	74	4	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	4	60	swallowed hook
W08	11	27	1999	37	41	74	4	Loggerhead	alive, injured	beak/mouth	1	0	0	55	spit hook out of mouth, dove immediately,no gear attached
R02	12	4	1999	35	43	74	44	unknown	alive, injured	beak/mouth	0	0	5	150	hooked in mouth
S20	11	25	1999	25	19	89	34	Leatherback	alive, injured	flipper	0	0	2	180	hooked in left front flipper
S20	11	30	1999	24	14	83	52	Loggerhead	alive, injured	beak/mouth	0	0	2	140	hooked in mouth
P50	11	13	1999	26	36	92	28	unknown	alive, injured	beak/mouth	0	0		120	line cut short, hook in side of mouth,original id was hawksbill, but improbable
T44	4	23	1999	32	39	72	49	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	120	hooked in throat
T44	4	23	1999	32	39	72	49	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	70	hook in throat
F67	6	15	1999	32	13	78	23	Leatherback	alive, injured	flipper	0	0	6	152	hooked in flipper
F67	6	15	1999	32	13	78	23	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	48	hooked in mouth
T45	6	1	1999	32	29	78	5	Leatherback	alive, injured	flipper	0	1	48	182	hook location unknown,excellent condition
S14	5	30	1999	39	52	54	52	Loggerhead	alive, injured	unknown beak/mouth	1	0	0	56	Lip hooked, hook removed, released in excellent condition
S14	5	30	1999	39	52	54	52	Loggerhead	alive, injured	flipper	1	0	0	65	hooked right pectoral fin, excellent condition
S14	5	30	1999	39	52	54	52	Loggerhead	alive, injured	unknown beak/mouth	0	0	0	60	mouth hooked,released in good condition
S14	6	3	1999	41	36	51	25	Leatherback	alive, uninjured	unknown other	0	1	12	170	
S14	6	10	1999	42	22	51	27	Loggerhead	alive, injured	unknown beak/mouth	0	0	2	140	mouth hooked
S14	6	13	1999	41	10	51	24	Leatherback	alive, injured	flipper	0	0	15	200	right front flipper snagged
S14	6	16	1999	41	51	50	20	Leatherback	alive, injured	unknown beak/mouth	0	0		179	mouth hooked, some line left in with hook

											No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
S14	6	16	1999	41	51	50	20	Loggerhead	alive, injured	unknown beak/mouth	0	0		100	mouth hooked, some line left in with hook
S14	6	16	1999	41	51	50	20	Leatherback	alive, injured	unknown beak/mouth	0	0		180	mouth hooked, some line left in with hook
S14	6	17	1999	42	1	50	25	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	90	mouth hooked
S14	6	18	1999	41	59	50	24	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	3	80	hook swallowed
S14	6	18	1999	41	59	50	24	Loggerhead	alive, injured	unknown beak/mouth	0	0	2	65	mouth hooked
S14	6	18	1999	41	59	50	24	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	80	mouth hooked
S14	6	18	1999	41	59	50	24	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	4	100	swallowed hook
S14	6	18	1999	41	59	50	24	Loggerhead	alive, injured	unknown beak/mouth	0	0	0	80	mouth hooked
S14	6	19	1999	42	3	50	22	Loggerhead	alive, injured	unknown beak/mouth	0	0	10	70	mouth hooked
S14	6	20	1999	42	14	50	44	Loggerhead	alive, injured	unknown beak/mouth	0	0		120	mouth hooked, seemed in very bad shape
S14	6	22	1999	42	24	50	48	Leatherback	alive, injured	flipper	0	0		200	tail? hooked,swam off strong
S14	6	22	1999	42	24	50	48	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0		90	hook swallowed
S14	6	23	1999	42	24	50	38	Loggerhead	alive, injured	flipper	0	0		90	tail hooked
S14	6	23	1999	42	24	50	38	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0		90	hook swallowed
S14	6	23	1999	42	24	50	38	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0		110	hook swallowed
S14	6	23	1999	42	24	50	38	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0		125	hook swallowed, seemed in very bad shape
S10	1	27	1999	28	0	79	25	Leatherback	alive, injured	flipper	0	1	6	200	hooked in right pectoral fin
S10	1	30	1999	28	0	79	25	Leatherback	alive, injured	head/neck (external)	0	0	12	200	hooked by mouth
P43	3	1	1999	26	14	91	34	unknown	other, unknown	unknown other	0	1	20		tangled, maybe hooked but not in mouth
N34	2	27	1999	20	29	73	50	Loggerhead	alive, injured	unknown beak/mouth	0	0	1	70	hooked in mouth
N34	2	28	1999	20	25	75	50	Loggerhead	alive, injured	unknown beak/mouth	0	0	3	80	hooked in mouth
N34	2	28	1999	20	25	75	50	Loggerhead	alive, uninjured	not hooked		1	0	85	entangled in flipper,all line removed
N34	3	1	1999	20	27	73	50	Leatherback	alive, injured	unknown beak/mouth	0	0	2	100	hooked in mouth
N34	3	4	1999	20	25	73	52	Loggerhead	alive, injured	unknown beak/mouth	0	0	2	100	hooked in mouth
N34	3	4	1999	20	27	73	50	Leatherback	alive, injured	flipper	0	0	2	110	hooked in left front flipper
N34	3	9	1999	20	25	73	52	Loggerhead	alive, injured	unknown beak/mouth	0	0	3	65	hooked in mouth
W03	4	22	1999	28	37	79	29	Leatherback	alive, injured	unknown beak/mouth	0	0	9	160	hooked in mouth
Q09	8	11	1999	31	45	79	5	Leatherback	alive, uninjured	unknown other	0	0	60		dove as boat approached, line cut at clip,not known tangled or hooked
F69	7	16	1999	45	45	43	1	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	71	mouth hooked
F69	7	16	1999	45	45	43	0	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	56	mouth hooked
F69	7	16	1999	45	45	43	4	Loggerhead	alive, injured	unknown beak/mouth	1	0	0	51	mouth hooked
F69	7	17	1999	46	4	43	35	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	64	mouth hooked
F69	7	17	1999	46	4	43	35	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	71	mouth hooked

												No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
F69	7	17	1999	46	4	43	35	Loggerhead	alive, injured	flipper	0	0	0	48	
F69	7	19	1999	46	6	43	14	Loggerhead	alive, injured	unknown beak/mouth	1	0	0	46	mouth hooked
F69	7	19	1999	46	6	43	14	Loggerhead	alive, injured	unknown beak/mouth	0	0	3	66	mouth hooked
F69	7	19	1999	46	6	43	14	Loggerhead	alive, injured	unknown beak/mouth	0	0	3	71	mouth hooked
F69	7	19	1999	46	6	43	14	Leatherback	alive, injured	unknown beak/mouth	0	0	12	183	mouth hooked
F69	7	19	1999	46	6	43	14	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	71	mouth hooked
F69	7	20	1999	46	6	43	1	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	69	mouth hooked
F69	7	20	1999	46	6	43	1	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	69	mouth hooked
F69	7	20	1999	46	6	43	1	Loggerhead	alive, injured	unknown beak/mouth	0	0	2	71	mouth hooked
F69	7	20	1999	46	6	43	1	Leatherback	alive, uninjured	not hooked		1	0	168	tangled in radio buoy drop rope, untangled completely
F69	7	21	1999	45	59	42	46	Leatherback	alive, injured	flipper	0	0	9	183	
F69	7	21	1999	45	59	42	46	Leatherback	alive, injured	unknown beak/mouth	0	0	10	152	mouth hooked
F69	7	21	1999	45	59	42	46	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	69	mouth hooked
F69	7	21	1999	45	59	42	46	Leatherback	alive, injured	flipper	0	1	12	168	
F69	7	22	1999	42	2	42	36	Loggerhead	other, unknown	unknown other				66	did not see capture or release
F69	7	22	1999	46	2	42	36	Leatherback	other, unknown	unknown other				168	did not see capture or release, id by captain
F69	7	22	1999	46	2	42	36	Leatherback	other, unknown	unknown other				168	did not see capture or release
F69	7	22	1999	46	2	42	36	Leatherback	alive, injured	unknown beak/mouth	0	0	12	183	mouth hooked
F69	7	22	1999	46	2	42	36	Leatherback	other, unknown	unknown other				183	did not see capture or release
F69	7	22	1999	46	2	42	36	Leatherback	alive, uninjured	not hooked		1	0	168	tangled in mainline, line cut
F69	7	26	1999	46	18	42	39	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	66	mouth hooked
F69	7	27	1999	46	9	42	21	Loggerhead	alive, injured	head/neck (external)	0	0	8	183	
F69	7	28	1999	46	9	41	53	Loggerhead	alive, injured	unknown other	0	0	18	183	did not see capture
F69	7	28	1999	46	9	41	53	Loggerhead	alive, injured	unknown beak/mouth	0	0	3	66	mouth hooked
F69	7	28	1999	46	9	41	53	Leatherback	other, unknown	unknown other				168	did not see capture or release
F69	7	28	1999	46	9	41	53	Leatherback	other, unknown	unknown other				122	did not see capture or release
F69	7	28	1999	46	9	41	53	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	64	mouth hooked
F69	7	28	1999	46	9	41	53	Leatherback	alive, uninjured	not hooked		1	24	168	tangled in mainline and buoy drop;untangled from mainline,but bullet buoy and buoy drop remained tangled on animal
F69	7	29	1999	46	0	41	33	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	69	mouth hooked
F69	7	29	1999	46	0	41	33	Loggerhead	alive, injured	unknown beak/mouth	0	0	4	61	mouth hooked
F69	7	29	1999	46	0	41	33	Loggerhead	other, unknown	unknown other				64	did not see capture or release
F69	7	29	1999	46	0	41	33	Loggerhead	alive, injured	unknown beak/mouth	0	0	3	56	mouth hooked, animal remained on the surface of the water

											No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
F69	7	29	1999	46	0	41	33	Leatherback	alive, uninjured	not hooked		1	0	152	mainline tangled around neck,untangled from mainline,remained on the surface with head above surface
F69	7	29	1999	46	0	41	33	Leatherback	alive, injured	unknown other	0	0	12	168	hooked unknown, remained just below surface
F69	7	29	1999	46	0	41	33	Leatherback	alive, injured	flipper	0	0	12	183	
F69	7	29	1999	46	0	41	33	Leatherback	alive, uninjured	not hooked		1	0	168	tangled in mainline around neck and flipper, untangled completely
F69	7	29	1999	46	0	41	33	Leatherback	alive, injured	flipper	0		12	168	
F69	7	29	1999	46	0	41	33	Leatherback	other, unknown	unknown other				168	did not see capture or release
F69	7	29	1999	46	0	41	33	Leatherback	alive, injured	not hooked		1	0	152	tangled in mainline,gangion line and buoy drop,line cut at boat side
F69	7	30	1999	46	11	41	51	Leatherback	alive, injured	unknown beak/mouth	0	0	10	183	mouth hooked
F69	7	30	1999	46	11	41	51	Loggerhead	alive, injured	unknown beak/mouth	0	0	6	66	mouth hooked
F69	7	30	1999	46	11	41	51	Leatherback	alive, injured	flipper	0	0	5	183	flipper hooked
F69	7	30	1999	46	11	41	51	Leatherback	alive, injured	flipper	0	0	6	183	flipper hooked
F69	7	31	1999	46	5	41	33	Leatherback	other, unknown	unknown other				168	did not see capture or release
F69	7	31	1999	46	5	41	33	Leatherback	alive, injured	flipper	0	0	15	168	flipper hooked
F69	7	31	1999	46	5	41	33	Leatherback	alive, uninjured	not hooked		1	0	183	tangled in drop buoy, cut loose completely
F69	8	3	1999	46	15	41	54	Leatherback	alive, injured	flipper	0	0	6	152	flipper hooked
F69	8	3	1999	46	15	41	54	Loggerhead	alive, injured	unknown beak/mouth	0	0	5	71	mouth hooked
S17	10	2	1999	28	1	79	38	Loggerhead	alive, injured	beak/mouth	0	0	6	100	hooked in mouth
S18	10	22	1999	31	36	78	50	Loggerhead	alive, injured	beak/mouth	0	0	6	110	hooked in mouth
W07	10	21	1999	39	53	69	51	Loggerhead	alive, injured	beak/mouth	0	0	2	75	hooked in tongue
W07	10	21	1999	39	53	69	51	Loggerhead	alive, injured	unknown beak/mouth	1	0	0	75	spit hook out of mouth
W07	10	21	1999	39	53	69	51	Leatherback	alive, injured	flipper	0	0	2	135	hooked in right front flipper
M01018	1	16	2000	18	6	54	52	Loggerhead	alive, injured	head/beak	0	0	0.5	95	beak hooked;swam away strongly
M01018	1	18	2000	17	52	53	45	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	1	90	gut hooked;swam away strongly
T01049	1	19	2000	27	50	91	21	Loggerhead	alive, injured	unknown other	0	0	210		condition unknown
M01018	1	22	2000	17	55	53	8	Loggerhead	alive, injured	flipper	0	0	0.5	90	LF flipper hooked;swam away strongly
M01018	1	22	2000	17	56	53	8	Loggerhead	alive, injured	head/beak	0	0	0.2	90	beak hooked;swam away strongly
M01018	1	23	2000	18	20	53	20	Leatherback	alive, injured	unknown other	0	0	20	180	large turtle could not be brought alongside;not hooked in head
S01022	2	12	2000	28	15.5	74	10.7	Loggerhead	alive, injured	unknown other	2	0	?	60	minor injury caused by hook;hook in mouth,not past cavity;lengths estimated; ventral side not seen

												No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location		hook removed	entangled	line left (ft)	CL (cm)	additional comments
S01023	3	8	2000	31	54.2	78	50.1	Leatherback	alive, injured	beak/mouth		0	0	10	150	hooked in mouth;swam off readily
S01023	3	9	2000	31	51.2	78	42.1	Leatherback	alive, injured	beak/mouth		0	0	30	170	hooked in mouth;lip shank visible; released alive and energetic
Q02005	3	21	2000	27	35.3	90	9.9	Leatherback	alive, injured	flipper		0	0	5	122	hooked in RF flipper
Q02005	3	22	2000	27	38.2	90	3.6	Loggerhead	alive, injured	head/beak		0	0	3	90	released with hook inside of beak
R01005	4	15	2000	28	28	79	3	unknown	alive, injured	ingested (throat/esophagus)		0	0	0	0	unidentified due to dangerous weather and conditions;fairly sure it was loggerhead
R01005	4	17	2000	28	16	78	55	Loggerhead	alive, injured	ingested (throat/esophagus)		0	0	6	125	
S01025	4	18	2000	28	39.1	79	3.8	Loggerhead	alive, injured	ingested (throat/esophagus)		0	0	6	100	hooked in throat;exhibited some difficulty breathing;swam off readily
S01025	4	21	2000	28	43.1	78	45.7	Loggerhead	alive, injured	beak/mouth		0	0	2	140	hooked in mouth;shank fully visible; seemed fine
A25006	4	22	2000	36	8	74	39	Loggerhead	alive, injured	unknown other		1	0	0	61	came off hook and swam away as it was pulled to boat head first
P01055	5	16	2000	26	50	89	34	Leatherback	alive, injured	carapace/plastron		0	0	1	0	very strong;appeared healthy; hooked under edge of shell midway,right side
J02001	5	28	2000	31	40	78	40	unknown	alive, injured	unknown other		0	1	6	90	leader was wrapped around LR flipper; when it broke there was ~6' of line and a dead dolphin fish attached but turtle swam away fine;unsure about i.d.
J02001	5	29	2000	31	45	79	40	Loggerhead	alive, injured	beak/mouth		0	0	1	70	hooked in top of mouth;line cut as close to mouth as possible but could not remove hook without further injuring turtle;swam away and seemed fine
K02001	5	31	2000	28	5	79	30	unknown	alive, injured	beak/mouth		1	0	0	90	hooked in mouth;not entangled;freed itself at boat;no gear attached when dove
P01056	6	5	2000	27	11	91	22	Leatherback	alive, injured	beak/mouth		0	0	1	140	
P01056	6	7	2000	27	7	89	30	unknown	alive, injured	unknown beak/mouth		0	0	12	0	turtle pulled hard against leader
P01056	6	11	2000	26	29	90	11	unknown	alive, injured	unknown other		0	0	20	0	turtle not brought close enough to ascertain condition,except it was alive
B56038	6	11	2000	37	56	68	46	Leatherback	alive, injured	unknown other		0	1	45	120	turtle surfaced ~15 yds from vessel;cannot see where hooked; line cut;swam away uninjured
P01056	6	12	2000	26	58	89	46	Leatherback	alive, injured	carapace/plastron		0	0	3	120	released at boat; short line; swam away strongly
P01056	6	14	2000	27	23	89	50	Leatherback	alive, injured	beak/mouth		0	0	2	120	hook in joint of jaws

												No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
J02003	7	12	2000	43	35	45	30	Loggerhead	alive, injured	beak/mouth	0	0	0	53	hooked in front of beak;netted and brought on board;biopsy punch sample of RR flipper;cut line from hook and left hook in turtle;swam away strongly
J02003	7	12	2000	43	31	45	37	Loggerhead	alive, injured	flipper	1	0	0	51	hooked in RF flipper;biopsy in RR flipper;tagged,measured;removed hook and line;seemed fine at release
J02003	7	12	2000	43	31	45	38	Loggerhead	alive, injured	beak/mouth	1	0	0	59	hooked in beak;biopsied and tagged RR filipper;hook and line removed;swam away strong
J02003	7	15	2000	43	11	51	20	Leatherback	alive, injured	flipper	0	0	4	120	caused a large tangle in the gear;hooked in the RF flipper and was pulling hard;swam away quickly
J02003	7	15	2000	43	13	51	24	Leatherback	alive, injured	flipper	0	0	0	150	hooked in right shoulder;leader broke at hook;quickly swam away
J02003	7	30	2000	48	40	43	4	Leatherback	alive, injured	flipper	0	0	2	120	hooked in right front shoulder;swam away quickly
Q02009	7	31	2000	26	39	92	29.1	Leatherback	alive, injured	head/neck (external)	0	0	4	122	injury considered minor;likely to survive;hooked in ventral neck area near carapace;swam away actively;no tags noticed;sub-adult
J02003	8	2	2000	49	25	42	27	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	55	swallowed bait (squid);brought on board in net; measured, tagged, biopsied each rear flipper;line cut even with mouth; id according to guide book
J02003	8	2	2000	49	25	42	24	Leatherback	alive, injured	unknown other	0	0	5	150	came up for air during haul-in; positive id; swam under boat and did not resurface; broke leader ~3' below swivel and swam away; believed foul hooked from the way it was pulling
P01057	8	4	2000	26	19	90	58	Leatherback	alive, injured	carapace/plastron	0	0	2	130	turtle was very stong;had difficulty bringing close enough to release
O02008	8	7	2000	40	51.9	66	9.2	Loggerhead	alive, uninjured	beak/mouth	1	0	0	72	F1 tagged and released;sample LR flipper; hook easily removed as it was held in the mouth; no hook penetration; no gear attached; swam away strongly
P01057	8	7	2000	26	51	92	13.2	Leatherback	alive, injured	carapace/plastron	0	0	20	130	turtle extremely strong and heavy;could not get turtle to surface

											No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
P01057	8	7	2000	26	51	92	13	Leatherback	alive, injured	carapace/plastron	0	0	2	130	turtle released by side of vessel; very good condition; did not set this area again
T01054	8	9	2000	39	54	68	48	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	1	61	throat hooked;6" leader left attached
W01013	8	9	2000	39	55	69	20	Loggerhead	alive, uninjured	unknown other	0	0	0	45	believed not hooked,just feeding on bait,or spat out hook;turtle closely associated with gear;believed initially on the leader,came to surface at the stern because vessel stopped to pull on leader;spat out bait or escaped gear;swam away
T01054	8	10	2000	40	4	68	40	Loggerhead	alive, injured	beak/mouth	0	0	0	80	no leader;9/0 hook left
T01054	8	11	2000	40	1	68	37	Leatherback	alive, injured	flipper	0	0	0	152	excellent condition;no leader
W01013	8	11	2000	39	52	70	28	Loggerhead	alive, injured	beak/mouth	0	0	60	60	
T01054	8	12	2000	40	0	68	59	Loggerhead	other, unknown	unknown other	2	2	0	76	recorded on individual animal log;life history form not filled out at time of data submission;observer could not remember details of gear interaction during followup questioning
T01054	8	16	2000	40	36	66	50	Loggerhead	alive, injured	beak/mouth	0	0	2	90	
W01013	8	20	2000	39	40	72	3	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	1	50	
W01013	8	22	2000	39	47	71	36	Loggerhead	alive, injured	ingested (throat/esophagus)	0	2	45	0	
M01020	8	25	2000	46	17.1	44	54.3	Loggerhead	alive, injured	ingested (throat/esophagus)	1	0	0	0	biopsy collected from rear flipper; hook removed; very little bleeding; swam away strongly
M01020	8	27	2000	44	54.8	47	3.3	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	0	biopsy collected from rear flipper; gut hooked beyond view in oesophagus; no bleeding; leader cut inside mouth; swam away strongly
M01020	8	28	2000	44	42.5	47	23	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	0	biopsy "C-10" collected from rear flipper;hook beyond view in oesophagus;no bleeding;leader cut deep inside mouth;swam away vigorously
M01020	8	30	2000	44	44.2	48	23	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	0	hook in oesophagus,unseen;no bleeding;leader cut as far down throat as could be reached with cutters;biopsy "C-1" collected from rear flipper;more lethargic than turtles taken in warmer water;temp@ take 60.2F; temp@ release 61.2F;swam vigorously

												No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location		hook removed	entangled	line left (ft)	CL (cm)	additional comments
M01020	9	3	2000	43	20.6	51	30.5	Loggerhead	alive, injured	beak/mouth		1	0	0	0	dipnetted aboard;lightly hooked in beak;hook easily removed with no bleeding with little injury;biopsy "C-8";take temp 69.8F;release temp 69.9F;swam away vigorously
S01028	9	4	2000	31	28	79	1	Loggerhead	other, unknown	unknown other		2	2	40	90	leader broke before turtle was close enough to accurately assess consition or hook location;alive and appeared robust
M01020	9	4	2000	43	13.7	51	28.9	Loggerhead	alive, injured	ingested (throat/esophagus)		0	0	0	0	gut hooked; unseen in oesophagus;no bleeding;leader cut deep inside mouth;biopsy "C-3";dipnetted aboard;swam away vigorously;take temp 68F;release temp 68.8F
Q02010	9	4	2000	26	59.5	93	46.9	Leatherback	alive, injured	unknown other		0	0	30	0	no time to estimate size before captain cut leader
M01020	9	5	2000	43	23.7	51	39.3	Leatherback	alive, injured	flipper		0	1	0	120	hooked in leading edge of RF flipper;several wraps of monofilament around flipper were untangled and removed before leader cut at hook;swam strongly;little injury;2 hooks adjacent to each other on flipper;not clear if hooks from same or different sets
M01020	9	5	2000	43	14.1	51	14.5	Leatherback	alive, injured	flipper		0	1	0	110	released at surface by cutting leader at hook; hooked RF flipper;several wraps of monofilament were removed before cutting leader;swam away vigorously with little injury
S01028	9	6	2000	31	22	78	55	Leatherback	alive, uninjured	not hooked		0	1	0	170	entangled in mainline;no hook involved;all mono removed at release
M01020	9	12	2000	43	13.9	51	27.5	Leatherback	alive, injured	flipper		0	0	0	130	RF filpper hooked;released at the surface by cutting leader at the hook;little injury;swam away vigorously
J02004	9	20	2000	39	56	70	41	Loggerhead	alive, injured	beak/mouth		0	0	1	60	saw hooked through in lower jaw;line cut close to hook;swam away;~60-70 lbs;hooked on single leader with no entanglement;positive id

											No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
J02004	9	21	2000	39	47	71	20	Loggerhead	alive, injured	beak/mouth	0	0	1	60	turtle came up on single leader and was hooked in the mouth;brown on top;yellow on bottom;square head;positive I.d.;~2' carapace length;line cut close to mouth;swam away
J02004	9	21	2000	39	46	71	34	Loggerhead	alive, injured	beak/mouth	0	0	1	45	hooked in the mouth on single leader;brown on top and yellow on bottom;hook stuck out from bottom of jaw;line cut and swam away;positive id
W01014	9	22	2000	39	53	68	27	Loggerhead	alive, injured	beak/mouth	0	0	1	50	swam away strongly upon release
J02004	9	22	2000	39	49	71	44	Loggerhead	alive, injured	beak/mouth	0	0	1	60	hooked in the mouth on single leader;swam away looking fine
J02004	9	23	2000	39	50	71	48	Loggerhead	alive, injured	beak/mouth	0	0	1	75	hooked in right lower jaw;swam away quickly with short piece of line sticking out of mouth
T01055	10	6	2000	37	20	74	20	Leatherback	alive, injured	flipper	0	0	3	152	right flipper hooked; 3' 400lb mono leader left attached;swam off in excellent condition
T01055	10	6	2000	37	22	74	20	Loggerhead	alive, injured	beak/mouth	0	0	6	120	swam away in good condition with 6' 400 lb line and leader
T01055	10	6	2000	37	25	74	20	Loggerhead	alive, injured	beak/mouth	0	0	5	100	swam off in excellent condition with 5' 400 lb line and leader attached
J02005	10	19	2000	45	29	45	21	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	61	swallowed single hook;line cut even with mouth and released;swam away quickly;took 2 bio-tissue samples,one from each rear flipper
J02005	10	19	2000	45	26	45	20	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	65	swallowed hook of single leader;reddish brown with algae al over shell;square head and 2 claws on each rear flipper;tissue sample from LR flipper;line cut even with mouth and released;swam straight down
J02005	10	19	2000	45	23	45	18	Leatherback	alive, injured	head/neck (external)	0	0	3	120	foul hooked under mouth;swam away as soon as leader cut
J02005	10	19	2000	45	24	45	18	Loggerhead	alive, injured	beak/mouth	1	0	0	59	hooked in the mouth on a single leader;hook removed, tagged, sample removed from RR flipper;seemed fine;swam away

												No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
J02005	10	19	2000	45	23	45	18	Loggerhead	alive, injured	beak/mouth	1	0	0	55	hooked on a single leader with hook in mouth;swam away quickly and seemed unharmed
J02005	10	24	2000	46	1	44	3	Loggerhead	alive, injured	beak/mouth	1	0	0	56	biopsy sample from RR flipper;seemed fine as it swam away
J02005	10	24	2000	46	0	44	3	Loggerhead	alive, injured	ingested (throat/esophagus)	0	0	0	61	swallowed hook of single leader;sampled RR flipper;cut leader inside mouth and released;swam away fast
J02005	10	24	2000	45	59	44	7	Loggerhead	alive, injured	beak/mouth	1	0	0	41	hooked in the mouth on single leader;turtle missing lower right part of dorsal shell,but the skin underneath was healed with no open wounds;bottom shell not damaged;might have been hit by boat in the past;hook easily removed;swam away fine
J02005	10	31	2000	41	36	51	9	Leatherback	alive, injured	flipper	0	0	1	120	hooked in RF flipper; caught on single leader;leader cut;swam away
J02005	10	31	2000	41	38	51	14	Leatherback	alive, injured	flipper	0	0	3	150	very large;foul hooked in the right shoulder on a single leader;pulled hard on linet;line cut and it dove under boat immediately
J02005	10	31	2000	41	39	51	17	Leatherback	alive, injured	flipper	0	0	1	120	hooked in bottom of RF flipper on single leader;line cut and swam away fine
S01031	11	6	2000	26	46.2	79	53.8	Loggerhead	alive, injured	beak/mouth	0	0	3	80	hooked in side of beak; entire hook visible; leader cut close to animal; swam away strongly
S01031	11	8	2000	31	54	79	40.1	Loggerhead	alive, injured	flipper	0	0	6	80	hooked in LF flipper;leader cut;swam away strongly
S01031	11	10	2000	31	39.1	79	15.3	Leatherback	alive, uninjured	unknown other	1	0	0	150	turtle escapes,pulling out hook;no gear left on turtle;little apparent injury;associated with leader but leader unhooked while pulled towards the boat;swam away strongly
J02005	11	10	2000	40	47	66	36	Leatherback	alive, injured	head/neck (external)	0	1	1	120	foul hooked in the neck and tangled in a bullet drop; removed all tangled line; swam away
J02005	11	13	2000	40	49	66	35	Leatherback	alive, injured	unknown other	0	0	1	150	unable to confirm id from photos;foul hooked in LF flipper;swam away strongly; seemed unharmed

											No/Yes/Unknown 0/1/2				LF=left front RF=right front LR=left rear RR=right rear
trip	m	d	y	lat deg	lat min	lon deg	lon min	species	condition	hook location	hook removed	entangled	line left (ft)	CL (cm)	additional comments
K02003	12	11	2000	40	32	66	59	Loggerhead	alive, injured	beak/mouth	0	0	0	45	brought to boat side on hook;line cut at eye of hook which was in beak;swam away quickly
S01032	12	13	2000	28	24.3	78	15.1	Leatherback	alive, injured	flipper	0	0	6	160	hooked LF flipper;released in good condition;black